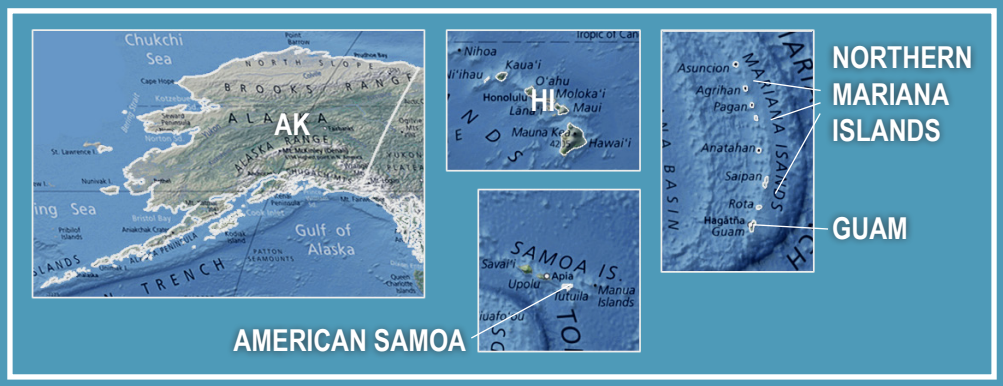
Coastal Systems Portfolio Initiative

Technical Review of Coastal Projects:

Storm Risk Management, Navigation and Ecosystem Restoration for the Nation's Coastlines

Existing Conditions, Resources at Risk, Estimated Future Costs, Opportunities for Action



Spring 2012

US Army Corps of Engineers®

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Introduction

The U.S. Army Corps of Engineers (USACE) provides coastal storm risk management (formerly called coastal storm damage reduction or shore protection) as an important part of its civil works mission – through measures like beach nourishment – under the Flood Risk Management Program. Other business lines such as navigation and coastal ecosystem restoration have strong links to the mission of providing comprehensive coastal storm risk management. The development of a systems approach to reduce damages and better manage risk due to coastal storms is crucial to demonstrating the significance of the service provided to the nation by the USACE Flood Risk Management Program through economic development, navigation, and ecosystem restoration. The connectivity among these three business lines: flood risk management, navigation and ecosystem restoration, must be considered when developing a systems approach to coastal storm risk management.

This document, "A Technical Review of Coastal Projects: Storm Risk management, Navigation, and Ecosystem Restoration for the Nation's Coastline" includes projects from Maine to Washington, the states along the Great Lakes, Alaska, Hawaii, and the Pacific Territories. It was compiled from a systems analysis performed by the coastal Districts of the USACE.

Public entities that manage coastal storm risk management in the United States face tough decisions.

As the federal agency authorized by Congress to study, plan, design, construct, and renourish coastal storm risk management projects (formerly called shore protection projects), the USACE is tasked with providing technical input on current and future needs for coastal projects. Accurate, up-to-date, and accessible technical information serves as a valuable resource for decision makers responsible for making balanced, information-based decisions for managing coastal programs.

This technical review presents the "big picture" about current and future needs for coastal projects along the Nation's coastlines. As the nation's engineer, the USACE collected and presented technical data and estimated costs, with consideration of project reliability and risk. The process used by the USACE to examine federal projects as a total system instead of as individual projects will continue to be refined over time. This technical review is an initial systems-based tool that decision makers at any level can use to make more informed judgments as they manage coastal storm risk management projects in the United States, both now and in the near future.

Montauk Point, New York

A Systems Approach

Numerous federal coastal storm risk management, navigation and ecosystem restoration projects are found along the Nation's coastlines. The USACE initiated a process that examines and evaluates federal projects as a system of systems instead of as individual projects. The process was summarized in a technical review document in Spring 2007 and has been revised on an annual basis ever since. USACE has a significant interest in finding new ways to continuously improve how it plans, designs, manages, and implements federal coastal projects.

The technical review of coastal projects presents a qualitative analysis of existing conditions, estimated federal future costs (over a five year period), and opportunities for action. The technical review document and web database include a series of tables that show existing conditions at Federal coastal projects. These tables identify coastal projects by current project phase and project type, and provide an overview of project reliability where construction is either complete or under way, as well as project areas where studies are ongoing. The reliability-coastal storm risk management condition rating, developed in the technical review document, provides a qualitative assessment of the need for project renourishment, based on an evaluation of the project's existing profile condition compared to its design profile. This rating was incorporated into the FY13 Flood Risk Management budget engineering circular and is being used in the development of the future budgets. This assessment should be performed bi-annually, on or around April 1 and October 1 to capture a more accurate snapshot of the physical condition of the beach following winter and summer seasons when the most significant changes occur to a beach profile and the project design condition.

The resources at risk are those resources that are at risk at all times, no matter what the condition of the coastal project is. In other words, resources at risk are the resources where risk is being reduced by the project or those resources that would be impacted if a project did not exist. The rating of resources at risk should not change based upon project reliability (or condition), but should only change if the actual resources change, i.e. new infrastructure is constructed, recreational opportunities are created, etc.

The tables also identify estimated federal future costs required to address total needs for federal coastal projects, by state, over the next five years. These tables will be updated annually to reflect changes in project phases and estimated future costs, based upon unconstrained capability.

This technical review neither establishes priorities for project funding, nor attempts to suggest, influence, or provide input to the federal budgetary process. Rather, federal costs per year and total federal costs presented here are based solely on existing technical plans, programs, and schedules in authorizing documents from Congress and project renourishments and maintenance operations performed to date.

Compilation of Information

A significant amount of information was collected and analyzed to prepare this technical review. The USACE study team first identified federal projects along the Nation's coastline, gathered project data, populated the Coastal Systems Portfolio Initiative web database with the project information, analyzed project data, and established and evaluated relationships between projects. The web database is accessible at http://cspi.usace.army.mil/.

Parameters for Evaluation

The USACE study team considered the following questions:

- **Project reliability.** How critical is the need for renourishment?
- **Type and extent of resources at risk.** What types of resources are at risk in the area? How important are these resources? How many of these resources exist? What is the estimated risk to these resources?
- **Connectivity and relationship of regional or adjacent projects.** How are coastal storm risk management projects related to other projects nearby, such as navigation and ecosystem restoration projects? What links can be made between adjacent projects using a systems-based approach?
- **Originally scheduled renourishment.** Was the project's originally scheduled renourishment performed on time, or has renourishment been delayed?

Supporting technical data for all coastal projects included in this technical review is available in the web database. The following additional data where applicable, was compiled for each coastal storm risk management, navigation, and ecosystem restoration project:

- USACE and Congressional districts;
- Project dates (reconnaissance, feasibility study, chief's report, authorized for construction, reevaluation report, pre-construction engineering and design, and initial construction initiated/completed)
- Project location (starting and ending latitude and longitude);
- Project length (miles);
- Initial fill quantity (estimated and actual);
- Renourishment cycle (years);
- Renourishment fill quantity (estimated and actual);
- Date of last renourishment operation (completed);
- Number of renourishment operations performed;
- Date of next scheduled renourishment operation;
- Cumulative construction cost (estimated and actual);
- Dredge operation cycle (years);
- Dredge volume removed (actual); and
- Dredge material placement.

Summary

This technical review presents the "big picture" about current and future needs for coastal projects along the Nation's coastlines. As the nation's engineer, the USACE collected and presented technical data and estimated costs, with consideration of project reliability and risk. The process used by the USACE to examine federal projects as a total system instead of as individual projects will continue to be refined over time. In the meantime, this technical review is an initial systems-based tool that decision makers at any level can use to make more informed judgments as they manage coastal storm risk management projects in the United States, both now and in the near future.

Interpreting the Tables

Existing Conditions Tables

Project Type

Projects are classified into **three types**:

CSRM = Coastal Storm Risk Management
NV = Navigation
ER = Ecosystem Restoration

Projects are listed in order by **geographic area** within a state. Navigation and ecosystem restoration projects are listed to allow consideration of **relationships** to adjacent coastal storm risk management projects.

Phase

Both **constructed** and **unconstructed** projects are identified by phase.

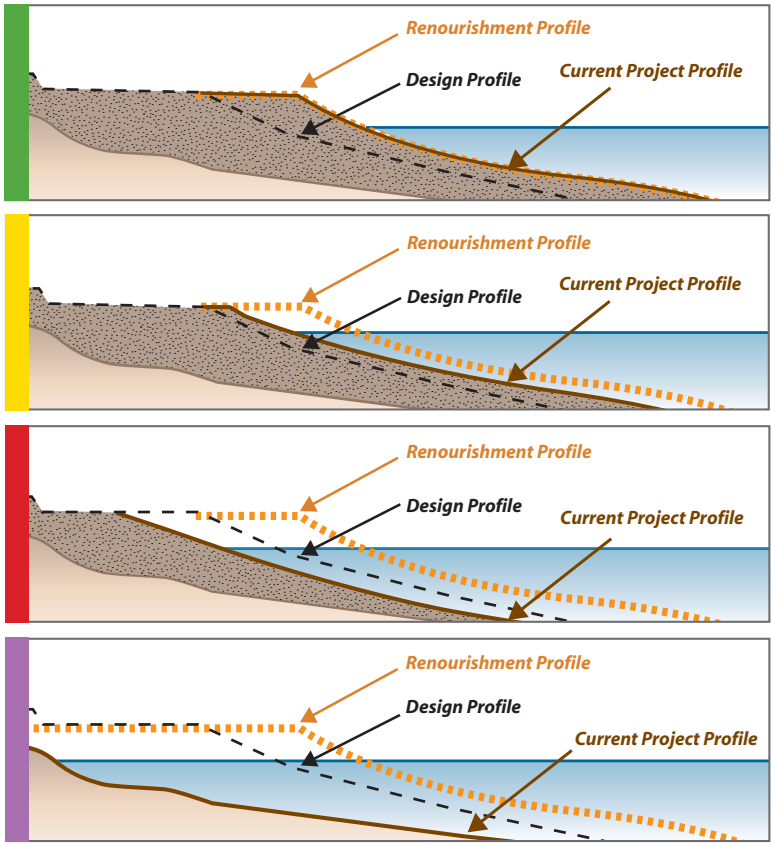
S = Study
E = Pre-construction engineering and design
A = Awaiting initial construction funds
P = Partial construction funds received
C = Initial construction completed
U = Under Construction
R = Renourishment(s) initiated
N = Navigation maintenance

- In general, constructed projects are either in phase P, C, or R.
- In general, unconstructed projects are either in phase S, E, or A.
- Navigation projects undergoing maintenance are in phase N.

Project Reliability: Coastal Storm Risk Management

- **Constructed Projects**
  All **constructed** coastal storm risk management projects listed in the Existing Conditions tables are color coded so that readers can determine **current project reliability at a glance**. For example, "red" coastal storm risk management projects are less reliable than "yellow" coastal storm risk management projects. "Yellow" coastal storm risk management projects are less reliable than "green" coastal storm risk management projects, which are performing well.

- **Unconstructed Projects**
  All **unconstructed** coastal storm risk management projects listed in the Existing Conditions tables are color coded in purple. These projects have significant coastal storm risk management problems identified.



These diagrams – which compare the **current project profile** with the **design profile** and the **renourishment profile** – give readers a general sense of **overall project reliability** for projects identified as either green, yellow, red, or purple.

Green = Good
Project is early in the renourishment cycle, or the project is performing better than expected, or both.

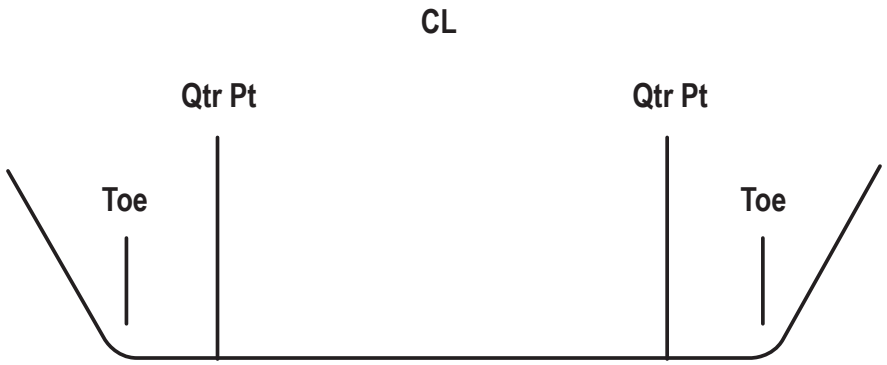
Yellow = Intermediate
Project is midway through the renourishment cycle, or the project is performing worse than expected, or both.

Red = Poor
Project is late in the renourishment cycle or below the design profile.

Purple = Unconstructed
Project reliability is not applicable for unconstructed projects. These projects have significant coastal storm risk management problems identified.

Project Reliability: Navigation

- All **navigation** projects listed in the Existing Conditions tables are color coded so that readers can determine **current project reliability at a glance**. For example, "red" navigation projects are less reliable than "yellow" navigation projects. "Yellow" navigation projects are less reliable than "green" navigation projects, which are performing well.
- Project reliability is determined according to the idea of probability and condition and involves the Half Channel Availability Percentage. This is the amount of time (during a 1-yr period) that the channel is available at maintained depths between the quarter points, see diagram. The quarter points represent the location of the channel dredged to its maintained depth.
- These values are pulled directly from the Navigation business line spreadsheet for FY13. The value in the "Prior Condition Assessment Class" column is used to represent the project reliability. The colors below have been assigned to the letters (A, B, C, D, F) that are used in the Navigation business line budget spreadsheet.



Green = Good (A)
95% at half channel availability at maintained depth.

Yellow = Moderate (B)
75% at half channel availability at maintained depth.

Orange = Poor (C)
50% at half channel availability at maintained depth.

Pink = Failing (D)
25% at half channel availability at maintained depth.

Red = Failed (F)
0% at half channel availability at maintained depth.

Interpreting the Tables

Extent of Resources at Risk: Coastal Storm Risk Management

The study team evaluated the extent of resources at risk in each coastal storm risk management project area. The extent of resources was judged as either **significant, moderate**, or **minimal** for both constructed and unconstructed coastal storm risk management projects. Any category with **no resources** present contains an (x).

The resources at risk are those resources that are at risk at all times, no matter what the condition of the coastal project is. In other words, resources at risk are the resources where risk is being reduced by the project or those resources that would be impacted if a project did not exist. The rating of resources at risk should not change based upon project reliability (or condition), but should only change if the actual resources change, i.e. new infrastructure is constructed, recreational opportunities are created, etc.

• • • = Significant resources present
• • = Moderate resources present
• = Minimal resources present
x = No resources present

Six resource types were evaluated:

- **Structures** (residential, commercial)
  - • • • = High development, urban area
  - • • = Medium development, suburban area
  - • = Low development, rural area
- **Environment and Habitat**
  - • • • = Critical or highly valued natural habitat
  - • • = Valued natural habitat
  - • = Little or no natural habitat
- **Infrastructure** (such as roads, water/sewer lines, boardwalks, and navigation structures)
  - • • • = Facilities serving a highly developed urban area
  - • • = Facilities serving a medium developed suburban area
  - • = Facilities serving a low developed rural area
- **Critical Facilities** (such as police, fire, schools, hospitals, and nursing homes)
  - • • • = High density of facilities
  - • • = Medium density of facilities
  - • = Low density of facilities
- **Evacuation and Re-entry Routes**
  - • • • = Routes serving a high-density population
  - • • = Routes serving a medium-density population
  - • = Routes serving a low-density population
- **Recreation**
  - • • • = High-use recreation area
  - • • = Medium-use recreation area
  - • = Low-use recreation area

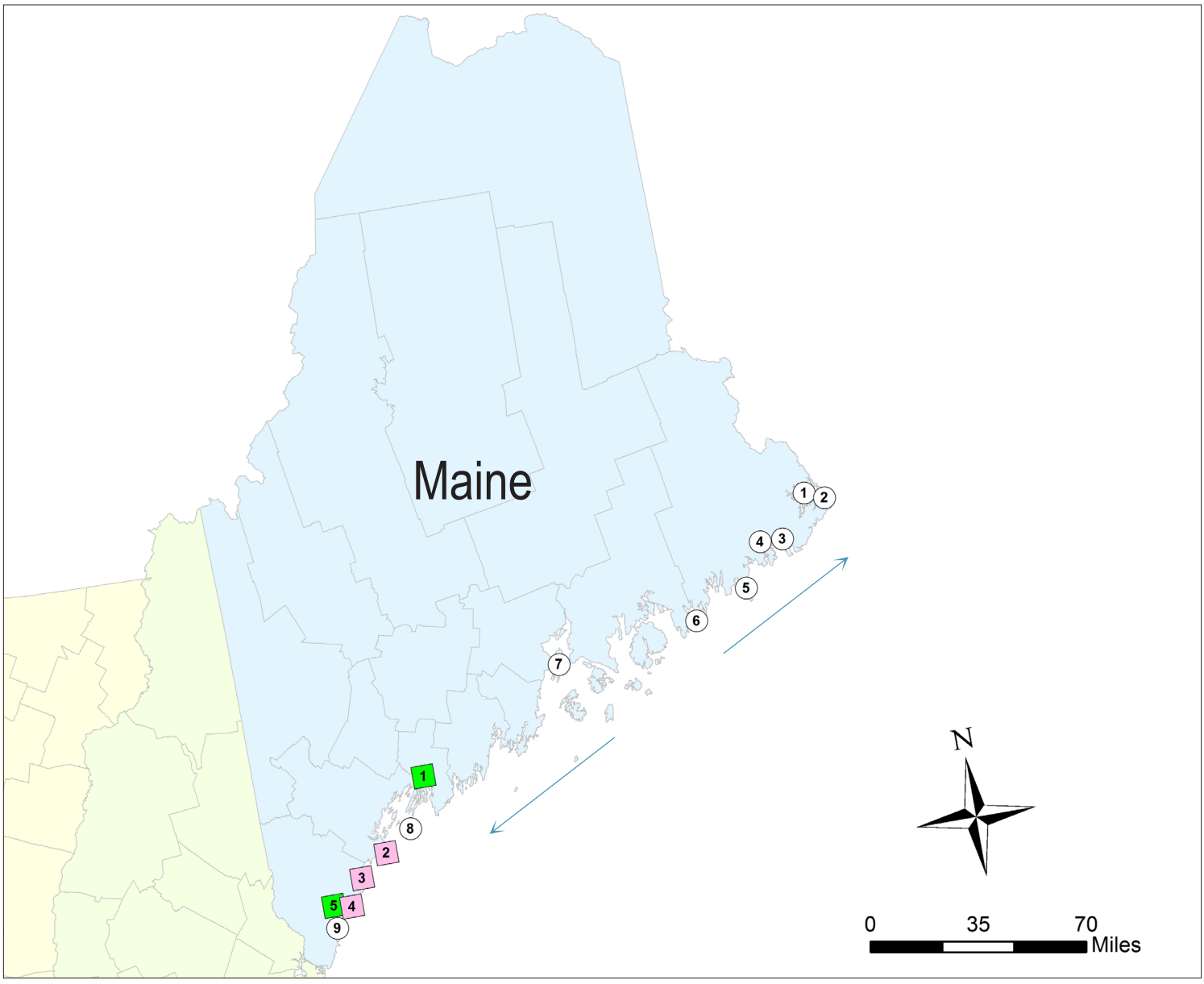
Extent of Resources at Risk: Navigation

The study team evaluated the extent of resources at risk in each navigation project area. The extent of resources was rated from 1-5 for all navigation projects. These values represent the Consequences/Economic Impact Rating identified in the "Prior Consequence Category" column in the Navigation business line budget spreadsheet.

Risk Level	Risk Description
1	• Demonstrated highest economic impact or >10M Tons • Imminent life safety impact • Court Decree Mandated Action (to include environmental) • DoD Strategic Ports • Shut down of Energy Distribution Facilities with no alternate modes of transportation
2	• Demonstrated high economic impact or 5-10M Tons • Probable life safety impact • Alternate modes of transportation exist for Energy Distribution Facilities, but at a higher cost than water borne transportation
3	• Demonstrated moderate economic impact or 1-5M Tons • Possible life safety impact
4	• Low economic impact or <1M Tons • No life safety impact
5	• Negligible economics (Recreation Harbors, No commercial Activity) • No life safety impact

Estimated Future Federal Costs Tables

These tables identify estimated federal future costs required to **address total needs for federal coastal storm risk management**, navigation, and ecosystem restoration projects by state over the next five years. Each state's table of estimated future costs includes notes about **connectivity** between adjacent coastal storm risk management, navigation, and ecosystem restoration projects. These connectivity notes identify potential economies of scale and cost savings that could be achieved in the future by considering these coastal storm risk management, navigation, and ecosystem restoration projects using a systems-based approach.


Maine
1
2
4
3
5
6
7
1
8
2
3
5
4
9
N
0
35
70
Miles
Direction of sediment flow

Maine

PROJECT LEGEND

Key	Type	Project Name
		Geographic Area: Northeastern Maine
1	CSRM	Roosevelt Campobello International Park, Lubec
2	CSRM	Johnson Bay, Lubec
3	CSRM	Holmes Bay, Whiting
4	CSRM	Machias Bay, Machiasport
5	CSRM	Alley Bay, Beals
6	CSRM	Sand Cove, Gouldsboro
7	CSRM	Islesboro (The Narrows)
1	NV	Kennebec River - Below Bath
8	CSRM	Merriconeag Sound, Harpswell
		Geographic Area: Southwestern Maine
2	NV	Scarborough River
3	NV	Saco River
4	NV	Wells Harbor
5	NV	Kennebunk River
9	CSRM	Marginal Way, Ogunquit

Coastal Storm Risk Management Project Reliability

- = GOOD
- = INTERMEDIATE
- = POOR
- = UNCONSTRUCTED
- = UNASSIGNED

Navigation Project Reliability

- = GOOD
- = MODERATE
- = POOR
- = FAILING
- = FAILED
- = UNASSIGNED

△ = INLET ONLY, NOT A FEDERAL NAVIGATION PROJECT

Holmes Bay

Kennebec River

Maine

Project Type	Project Name and Project Reliability	Phase	Extent of Resources at Risk: Structures (residential, commercial)	Environment and Habitat	Infrastructure (roads, water/sewer lines, boardwalks, navigation structures)	Critical Facilities (police, fire, schools, hospitals, nursing homes)	Evacuation and Re-entry Routes	Recreation	Consequence/ Economic Impact Rating
Geographic Area: Northeastern Maine									
CSRM	Roosevelt Campobello Intl. Park, Lubec	C	•••	•	••	•	•	•	
CSRM	Johnson Bay, Lubec	C	•	•	•	•	•••	•	
CSRM	Holmes Bay, Whiting	C	•	•	•	•	•	•	
CSRM	Machias Bay, Machiasport	C	••	•	•••	•••	•••	•	
CSRM	Alley Bay, Beals	C	••	•	••	•	•	•	
CSRM	Sand Cove, Gouldsboro	C	•	•	•••	•••	•••	•	
CSRM	Islesboro (The Narrows)	C	•	•	•	•	•••	•	
CSRM	Merriconeag Sound, Harpswell	C	••	•	••	•	•	•	
Geographic Area: Southwestern Maine									
NV	Kennebec River - Below Bath	N							1
NV	Scarborough River	N							4
NV	Saco River	N							4
NV	Wells Harbor	N							4
NV	Kennebunk River	N							3
CSRM	Marginal Way, Ogunquit	C							

Project Type

CSRM = Coastal Storm Risk Management
NV = Navigation
ER = Ecosystem Restoration

Project Reliability

Indicated by background colors:

Green = Good (CSRM, NV)
Yellow = Intermediate (CSRM), Moderate (NV)
Orange = Poor (NV)
Pink = Failing (NV)
Red = Poor (CSRM), Failed (NV)
Purple = Unconstructed (CSRM)

Phase

S = Study
E = Pre-construction engineering and design
A = Awaiting initial construction funds
P = Partial construction funds received
C = Initial construction completed
U = Under Construction
R = Renourishment(s) initiated
N = Navigation maintenance

Extent of Resources at Risk

Coastal Storm Risk Management

••• = Significant
•• = Moderate
• = Minimal
x = None

Navigation

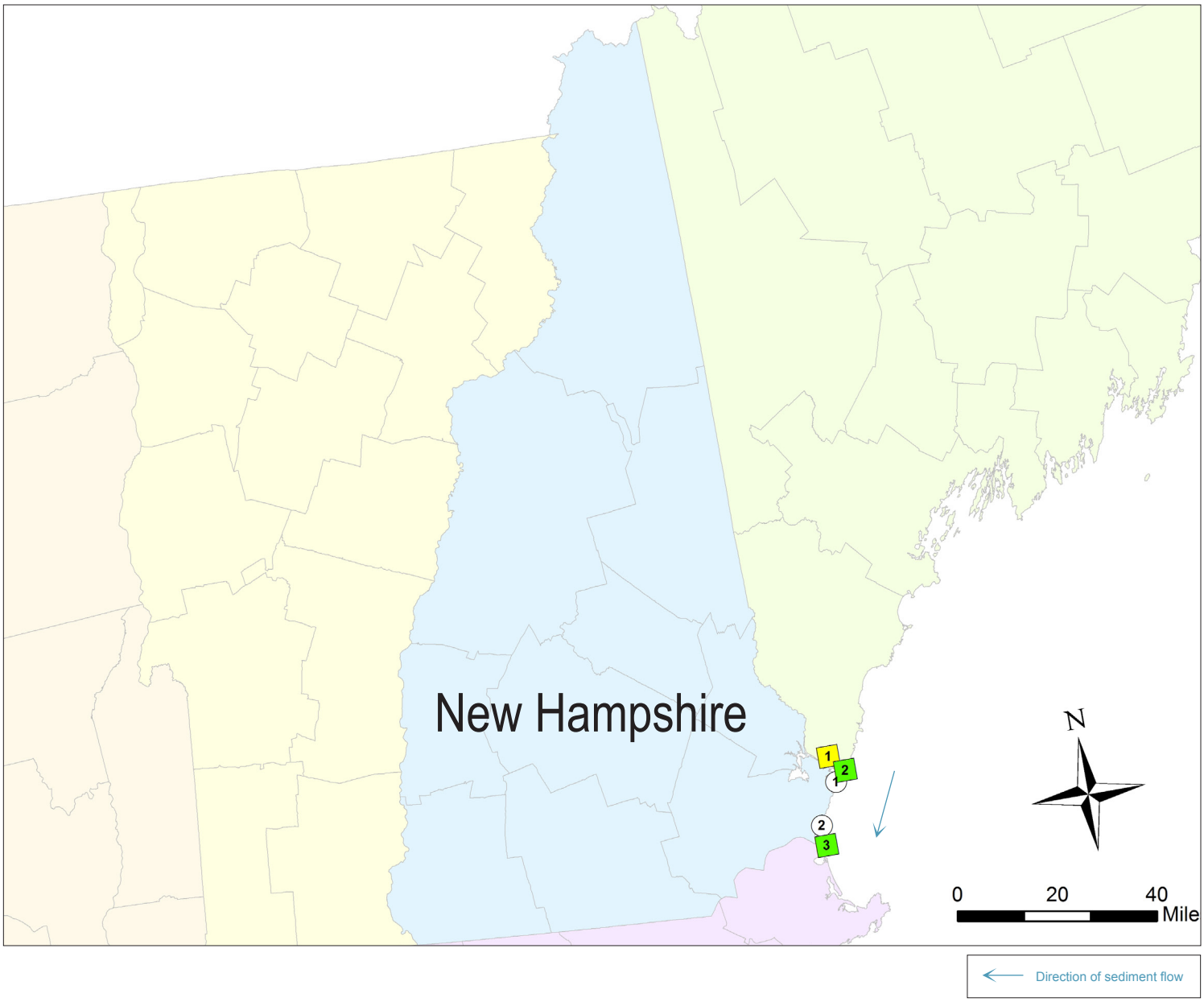
1 = Demonstrated highest economic impact or >10M Tons. Imminent life safety impact.
2 = Demonstrated high economic impact or 5-10M Tons. Probable life safety impact.
3 = Demonstrated moderate economic impact or 1-5M Tons. Possible life safety impact.
4 = Low economic impact or <1M Tons. No life safety impact.
5 = Negligible economics (Recreation Harbors, No commercial Activity). No life safety impact.

For complete definitions see page 7.

Maine		Estimated Future Federal Costs					
		Total (FY 2013 - FY 2017)	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
Project Name and Project Reliability	Phase	Geographic Area: Northeastern Maine					
Roosevelt Campobello Intl. Park, Lubec	C	$0	$0	$0	$0	$0	$0
Johnson Bay, Lubec	C	$0	$0	$0	$0	$0	$0
Holmes Bay, Whiting	C	$0	$0	$0	$0	$0	$0
Machias Bay, Machiasport	C	$0	$0	$0	$0	$0	$0
Alley Bay, Beals	C	$0	$0	$0	$0	$0	$0
Sand Cove, Gouldsboro	C	$0	$0	$0	$0	$0	$0
Islesboro (The Narrows)	C	$0	$0	$0	$0	$0	$0
Merriconeag Sound, Harpswell	C	$0	$0	$0	$0	$0	$0
Geographic Area: Southwestern Maine							
Kennebec River - Below Bath	N	$0	$0	$0	$0	$0	$0
Scarborough River	N	$0	$0	$0	$0	$0	$0
Saco River	N	$0	$0	$0	$0	$0	$0
Wells Harbor	N	$0	$0	$0	$0	$0	$0
Kennebunk River	N	$0	$0	$0	$0	$0	$0
Marginal Way, Ogunquit	C	$0	$0	$0	$0	$0	$0
Totals		$7,150,000	$0	$1,000,000	$2,800,000	$3,000,000	$350,000

Opportunities for Action

1. Maintenance material removed from the **Kennebec River** was placed in-river and at a near shore site; both considered beneficial to the littoral system.


New Hampshire
1
2
1
2
3
N
0
20
40
Mile
Direction of sediment flow

New Hampshire

Key	Type	Project Name
		Geographic Area: Coastal New Hampshire
1	NV	Hampton Harbor
2	NV	Little Harbor
3	NV	Portsmouth Harbor -Main Channels and Turning Basin
(1)	CSRM	Hampton Beach, Hampton
(2)	CSRM	Wallis Sands State Beach, Rye

Coastal Storm Risk Management Project Reliability

- = GOOD
- = INTERMEDIATE
- = POOR
- = UNCONSTRUCTED
- = UNASSIGNED

Navigation Project Reliability

- = GOOD
- = MODERATE
- = POOR
- = FAILING
- = FAILED
- = UNASSIGNED

△ = INLET ONLY, NOT A FEDERAL NAVIGATION PROJECT

Hampton Harbor

Wallis Sands State Beach

New Hampshire

Project Type	Project Name and Project Reliability	Phase	Extent of Resources at Risk: Structures (residential, commercial)	Environment and Habitat	Infrastructure (roads, water/sewer lines, boardwalks, navigation structures)	Critical Facilities (police, fire, schools, hospitals, nursing homes)	Evacuation and Re-entry Routes	Recreation	Consequence/ Economic Impact Rating
			Geographic Area: Coastal New Hampshire						
NV	Hampton Harbor	N							2
NV	Little Harbor	N							4
NV	Portsmouth Harbor -Main Channels and Turning Basin	N							2
CSRM	Hampton Beach, Hampton	C	•	•	•	•	•	•••	
CSRM	Wallis Sands State Beach, Rye	C	•	•	•	•	•	•••	

Project Type

CSRM = Coastal Storm Risk Management
NV = Navigation
ER = Ecosystem Restoration

Project Reliability

Indicated by background colors:

Green = Good (CSRM, NV)
Yellow = Intermediate (CSRM), Moderate (NV)
Orange = Poor (NV)
Pink = Failing (NV)
Red = Poor (CSRM), Failed (NV)
Purple = Unconstructed (CSRM)

Phase

S = Study
E = Pre-construction engineering and design
A = Awaiting initial construction funds
P = Partial construction funds received
C = Initial construction completed
U = Under Construction
R = Renourishment(s) initiated
N = Navigation maintenance

Extent of Resources at Risk

Coastal Storm Risk Management

••• = Significant
•• = Moderate
• = Minimal
x = None

Navigation

1 = Demonstrated highest economic impact or >10M Tons. Imminent life safety impact.
2 = Demonstrated high economic impact or 5-10M Tons. Probable life safety impact.
3 = Demonstrated moderate economic impact or 1-5M Tons. Possible life safety impact.
4 = Low economic impact or <1M Tons. No life safety impact.
5 = Negligible economics (Recreation Harbors, No commercial Activity). No life safety impact.

For complete definitions see page 7.

Footnotes

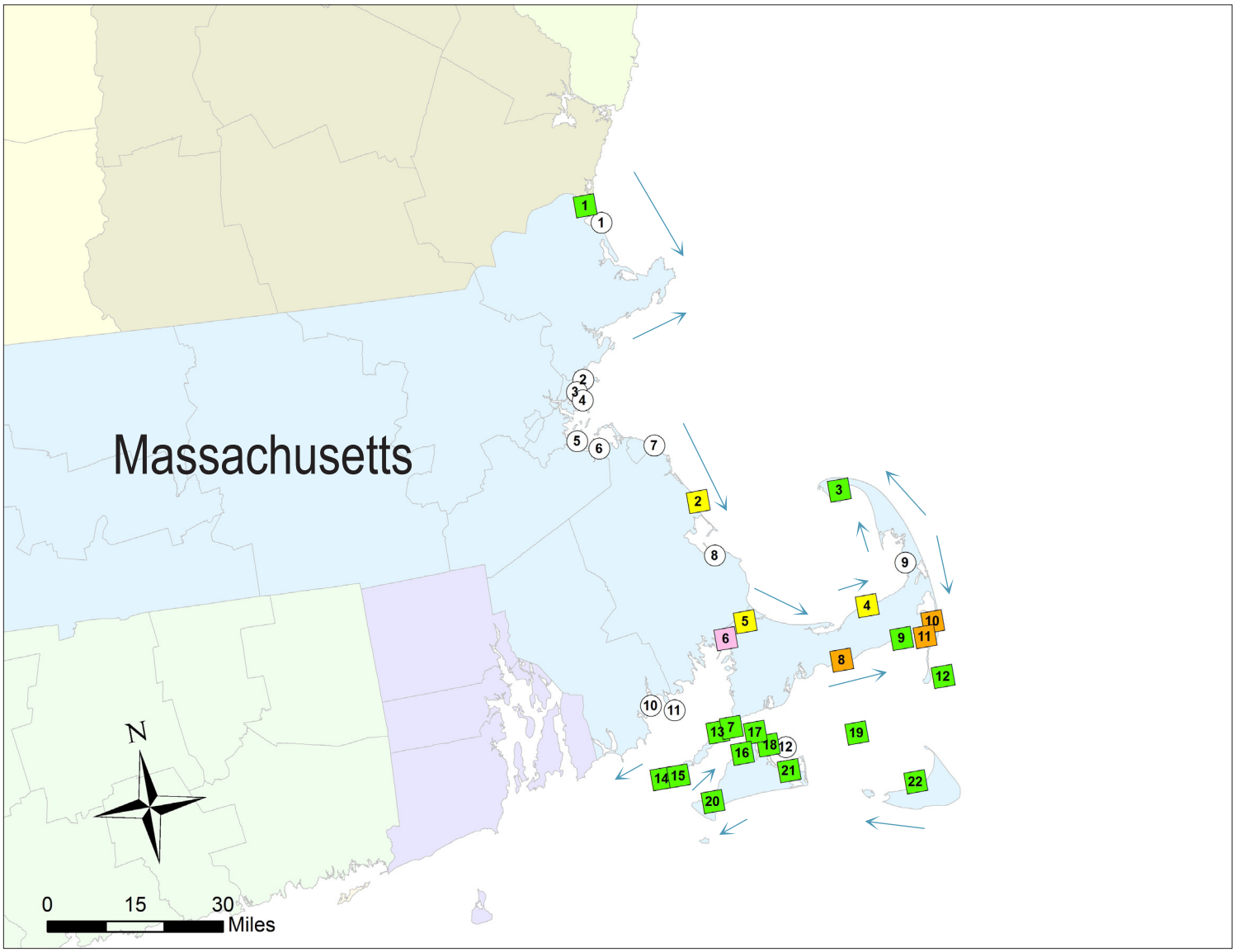
(1) Little Harbor was last dredged 2000/2001. It generated approximately 40,000 cy, which was placed near shore of Wallis Sand beach in Rye, NH.

New Hampshire

Project Name and Project Reliability	Phase	Estimated Future Federal Costs					
		Total (FY 2013 - FY 2017)	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
		Geographic Area: Coastal New Hampshire					
Hampton Harbor	N	$1,700,000	$1,700,000	$0	$0	$0	$0
Little Harbor	N	$1,100,000	$0	$0	$100,000	$1,000,000	$0
Portsmouth Harbor -Main Channels and Turning Basin	N	$1,500,000	$1,500,000	$0	$0	$0	$0
Hampton Beach, Hampton	C	$0	$0	$0	$0	$0	$0
Wallis Sands State Beach, Rye	C	$0	$0	$0	$0	$0	$0
Totals		$4,300,000	$3,200,000	$0	$100,000	$1,000,000	$0

Opportunities for Action

1. Planned maintenance of **Portsmouth Harbor** generated 50,000 cy of clean sand and gravel, some of which could be placed on nearby beaches but significant cost. In-river disposal was used; benefiting the littoral system.


Massachusetts
N
0
15
30
Miles
Direction of sediment flow

Massachusetts

Key	Type	Project Name
		Geographic Area: Massachusetts Bay
1	NV	Newburyport Harbor
(1)	CSRM	Plum Island Beach, Newbury
(2)	CSRM	Revere Beach
(3)	CSRM	Roughans Point, Revere
(4)	CSRM	Winthrop Beach
(5)	CSRM	Quincy Shore Beach
(6)	CSRM	Wessagusset Beach, Weymouth
(7)	CSRM	North Scituate Beach, Scituate
2	NV	Green Harbor
(8)	CSRM	Town Beach, Plymouth
		Geographic Area: Cape Cod and the Islands
2	NV	Provincetown Harbor
(9)	CSRM	Thumperton Beach, Eastham
4	NV	Sesuit Harbor
5	NV	Cape Cod Canal
6	NV	Buttermilk Bay Channel
7	NV	Little Harbor at Woods Hole
8	NV	Hyannis Harbor
9	NV	Andrews River (Saquatucket Harbor)
10	NV	Aunt Lydia´s Cove (Chatham Harbor)
11	NV	Chatham (Stage) Harbor
	NV	Pollock Rip Shoals
		Geographic Area: South Coast
(10)	CSRM	New Bedford Hurricane Barrier
(11)	CSRM	Clark Point Beach, New Bedford
		Geographic Area: Cape Cod and the Islands
13	NV	Woods Hole Channel
14	NV	Cuttyhunk Harbor
15	NV	Canapitsit Channel
16	NV	Vineyardhaven Harbor
17	NV	Lagoon Pond
18	NV	Oak Bluffs Harbor
(12)	CSRM	Oak Bluffs Town Beach
18	NV	Cross Rip Shoals
19	NV	Menemsha Creek
20	NV	Edgartown Harbor
21	NV	Nantucket Harbor of Refuge

Coastal Storm Risk Management Project Reliability

- = GOOD
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- = POOR
- = UNCONSTRUCTED
- = UNASSIGNED

Navigation Project Reliability

- = GOOD
- = MODERATE
- = POOR
- = FAILING
- = FAILED
- = UNASSIGNED

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Buttermilk Bay

Cuttyhunk Island

Massachusetts

Project Type	Project Name and Project Reliability	Phase	Extent of Resources at Risk: Structures (residential, commercial)	Environment and Habitat	Infrastructure (roads, water/sewer lines, boardwalks, navigation structures)	Critical Facilities (police, fire, schools, hospitals, nursing homes)	Evacuation and Re-entry Routes	Recreation	Consequence/ Economic Impact Rating
	Geographic Area: Massachusetts Bay								
NV	Newburyport Harbor	N							3
CSRM	Plum Island Beach, Newbury	C	•	•	•	•	•	•••	
CSRM	Revere Beach	C	••	•	•	•	•	•••	
CSRM	Roughans Point, Revere	C	•••	•	••	••	••	•	
CSRM	Winthrop Beach	C	••	•	•	•	•	••	
CSRM	Quincy Shore Beach	C	•	•	•	•	•	•••	
CSRM	Wessagusset Beach, Weymouth	C	•	•	•	•	•	••	
CSRM	North Scituate Beach, Scituate	C	•	•	•	•	•	•••	
NV	Green Harbor	N							4
CSRM	Town Beach, Plymouth	C	•	•	•	•	•	••	
	Geographic Area: Cape Cod and the Islands								
NV	Provincetown Harbor	N							2
CSRM	Thumperton Beach, Eastham	C	•	••	•	•	•	•••	
NV	Sesuit Harbor	N							1
NV	Cape Cod Canal	N							2
NV	Buttermilk Bay Channel	N							4
NV	Little Harbor at Woods Hole	N							2
NV	Hyannis Harbor	N							3
NV	Andrews River (Saquatucket Harbor)	N							2
NV	Aunt Lydia´s Cove (Chatham Harbor)	N							4
NV	Chatham (Stage) Harbor	N							4
NV	Pollock Rip Shoals	N							1
	Geographic Area: South Coast								
CSRM	New Bedford Hurricane Barrier	C							
CSRM	Clark Point Beach, New Bedford	C	•	•	•	•	•	••	
	Geographic Area: Cape Cod and the Islands								
NV	Woods Hole Channel	N							2
NV	Cuttyhunk Harbor	N							4
NV	Canapitsit Channel	N							5
NV	Vineyardhaven Harbor	N							2
NV	Lagoon Pond	N							4
NV	Oak Bluffs Harbor	N							2
CSRM	Oak Bluffs Town Beach	C	•	•	•	•	•	•••	
NV	Cross Rip Shoals	N							1
NV	Menemsha Creek	N							2
NV	Edgartown Harbor	N							3
NV	Nantucket Harbor of Refuge	N							2

Project Type

CSRM = Coastal Storm Risk Management
NV = Navigation
ER = Ecosystem Restoration

Project Reliability

Indicated by background colors:

Green = Good (CSRM, NV)
Yellow = Intermediate (CSRM), Moderate (NV)
Orange = Poor (NV)
Pink = Failing (NV)
Red = Poor (CSRM), Failed (NV)
Purple = Unconstructed (CSRM)

Phase

S = Study
E = Pre-construction engineering and design
A = Awaiting initial construction funds
P = Partial construction funds received
C = Initial construction completed
U = Under Construction
R = Renourishment(s) initiated
N = Navigation maintenance

Extent of Resources at Risk

Coastal Storm Risk Management

••• = Significant
•• = Moderate
• = Minimal
x = None

Navigation

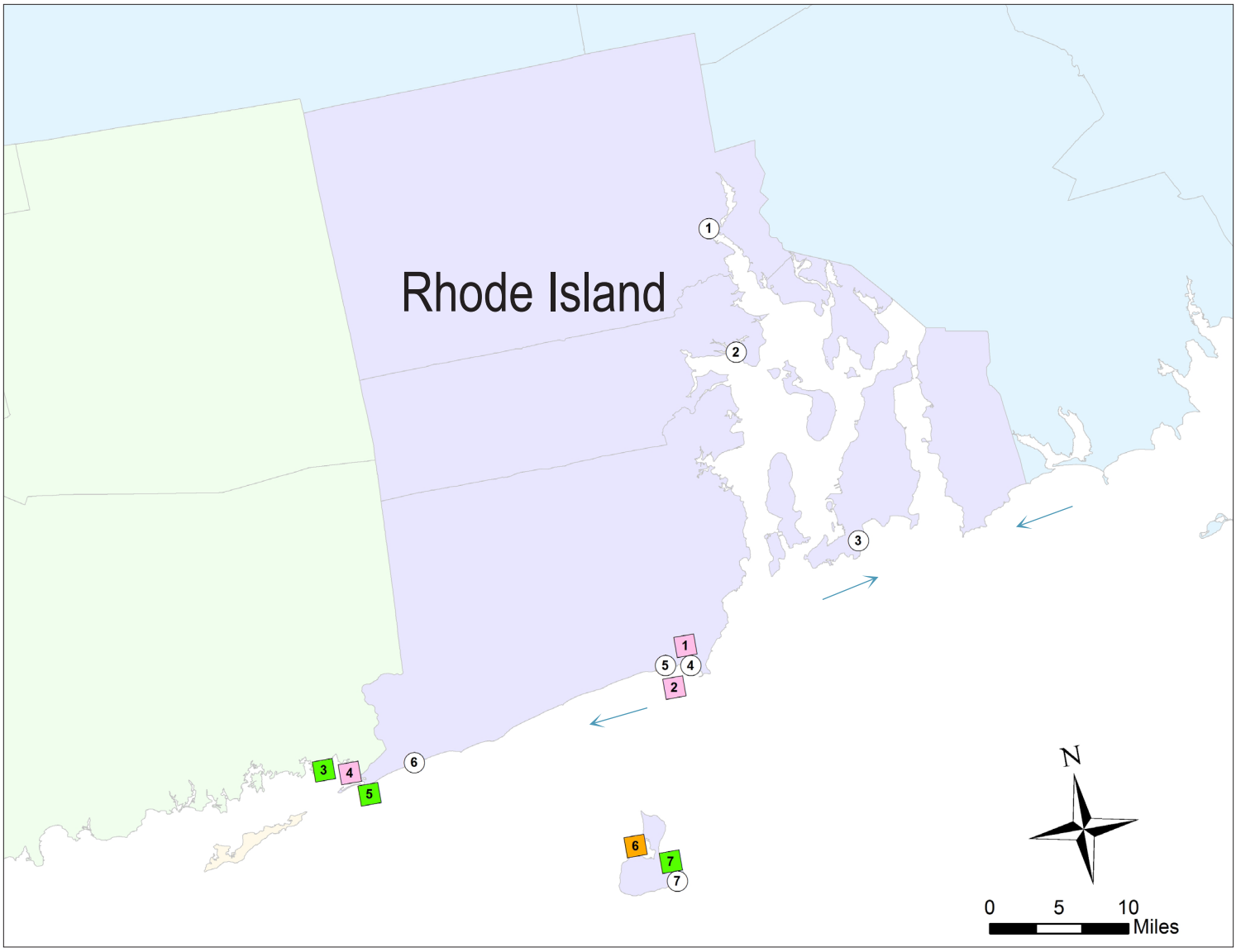
1 = Demonstrated highest economic impact or >10M Tons. Imminent life safety impact.
2 = Demonstrated high economic impact or 5-10M Tons. Probable life safety impact.
3 = Demonstrated moderate economic impact or 1-5M Tons. Possible life safety impact.
4 = Low economic impact or <1M Tons. No life safety impact.
5 = Negligible economics (Recreation Harbors, No commercial Activity). No life safety impact.

Massachusetts

Project Name and Project Reliability	Phase	Estimated Future Federal Costs					
		Total (FY 2013 - FY 2017)	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
Geographic Area: Massachusetts Bay							
Newburyport Harbor	N	$3,000,000	$0	$0	$0	$0	$3,000,000
Plum Island Beach, Newbury	C	$0	$0	$0	$0	$0	$0
Revere Beach	C	$0	$0	$0	$0	$0	$0
Roughans Point, Revere	C	$0	$0	$0	$0	$0	$0
Winthrop Beach	C	$0	$0	$0	$0	$0	$0
Quincy Shore Beach	C	$0	$0	$0	$0	$0	$0
Wessagusset Beach, Weymouth	C	$0	$0	$0	$0	$0	$0
North Scituate Beach, Scituate	C	$0	$0	$0	$0	$0	$0
Green Harbor	N	$850,000	$0	$0	$850,000	$0	$0
Town Beach, Plymouth	C	$0	$0	$0	$0	$0	$0
Geographic Area: Cape Cod and the Islands							
Provincetown Harbor	N	$0	$0	$0	$0	$0	$0
Thumperton Beach, Eastham	C	$0	$0	$0	$0	$0	$0
Sesuit Harbor	N	$460,000	$0	$200,000	$0	$0	$260,000
Cape Cod Canal	N	$2,000,000	$0	$2,000,000	$0	$0	$0
Buttermilk Bay Channel	N	$2,100,000	$0	$200,000	$1,900,000	$0	$0
Little Harbor at Woods Hole	N	$0	$0	$0	$0	$0	$0
Hyannis Harbor	N	$5,000,000	$0	$5,000,000	$0	$0	$0
Andrews River (Saquatucket Harbor)	N	$400,000	$0	$150,000	$0	$250,000	$0
Aunt Lydia´s Cove (Chatham Harbor)	N	$2,080,000	$410,000	$410,000	$420,000	$420,000	$420,000
Chatham (Stage) Harbor	N	$510,000	$0	$250,000	$0	$0	$260,000
Pollock Rip Shoals	N	$0	$0	$0	$0	$0	$0
Geographic Area: South Coast							
New Bedford Hurricane Barrier	C	$0	$0	$0	$0	$0	$0
Clark Point Beach, New Bedford	C	$0	$0	$0	$0	$0	$0
Geographic Area: Cape Cod and the Islands							
Woods Hole Channel	N	$0	$0	$0	$0	$0	$0
Cuttyhunk Harbor	N	$250,000	$0	$0	$250,000	$0	$0
Canapitsit Channel	N	$0	$0	$0	$0	$0	$0
Vineyardhaven Harbor	N	$0	$0	$0	$0	$0	$0
Lagoon Pond	N	$0	$0	$0	$0	$0	$0
Oak Bluffs Harbor	N	$0	$0	$0	$0	$0	$0
Oak Bluffs Town Beach	C	$0	$0	$0	$0	$0	$0
Cross Rip Shoals	N	$0	$0	$0	$0	$0	$0
Menemsha Creek	N	$0	$0	$0	$0	$0	$0
Edgartown Harbor	N	$0	$0	$0	$0	$0	$0
Nantucket Harbor of Refuge	N	$300,000	$0	$0	$0	$300,000	$0
Totals		$16,950,000	$410,000	$8,210,000	$3,420,000	$970,000	$3,940,000

Opportunities for Action

1. Maintenance material removed from **Chatham (Stage) Harbor** and **Aunt Lydia's Cove (Chatham Harbor)** are both placed in near shore sites; both of which are considered beneficial to the littoral system.


Rhode Island
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7
7
N
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10
Miles
Direction of sediment flow

Rhode Island

PROJECT LEGEND

Key	Type	Project Name
		Geographic Area: Narragansett Bay
1	CSRM	Fox Point Hurricane Barrier, Providence
2	CSRM	Oakland Beach, Warwick
3	CSRM	Cliff Walk
		Geographic Area: South Shore Rhode Island
1	NV	Pt. Judith Pond & Harbor of Refuge - Refuge Anchorage
2	NV	Pt. Judith Pond & Harbor of Refuge - Galillee Harbor Channels
4	CSRM	Sand Hill Cove Beach
5	CSRM	Matunuck Beach, South Kingstown
6	CSRM	Misquamicut Beach, Westerly
3	NV	Pawcatuck River - Sandy Point Channel
4	NV	Little Narragansett Bay
5	NV	Pawcatuck River - Watch Hill Cove
6	NV	Great Salt Pond (New Harbor)
7	NV	Block Island Harbor of Refuge (Old Harbor)
7	CSRM	Southeast Lighthouse, Block Island

Coastal Storm Risk Management Project Reliability

- = GOOD
- = INTERMEDIATE
- = POOR
- = UNCONSTRUCTED
- = UNASSIGNED

Navigation Project Reliability

- = GOOD
- = MODERATE
- = POOR
- = FAILING
- = FAILED
- = UNASSIGNED

△ = INLET ONLY, NOT A FEDERAL NAVIGATION PROJECT

Great Salt Pond

Point Judith

Rhode Island

Project Type	Project Name and Project Reliability	Phase	Extent of Resources at Risk: Structures (residential, commercial)	Environment and Habitat	Infrastructure (roads, water/sewer lines, boardwalks, navigation structures)	Critical Facilities (police, fire, schools, hospitals, nursing homes)	Evacuation and Re-entry Routes	Recreation	Consequence/ Economic Impact Rating
Geographic Area: Narragansett Bay									
CSRM	Fox Point Hurricane Barrier, Providence	C							
CSRM	Oakland Beach, Warwick	C	•	•	•	•	•	• • •	
CSRM	Cliff Walk	C	•	•	• •	•	•	•	
Geographic Area: South Shore Rhode Island									
NV	Pt. Judith Pond & Harbor of Refuge - Refuge Anchorage	N							1
NV	Pt. Judith Pond & Harbor of Refuge - Galillee Harbor Channels	N							1
CSRM	Sand Hill Cove Beach	C	•	• •	• •	•	•	• • •	
CSRM	Matunuck Beach, South Kingstown	C	• •	• •	•	•	•	•	
CSRM	Misquamicut Beach, Westerly	C	•	•	•	•	•	• • •	
NV	Pawcatuck River - Sandy Point Channel	N							3
NV	Little Narragansett Bay	N							4
NV	Pawcatuck River - Watch Hill Cove	N							4
NV	Great Salt Pond (New Harbor)	N							3
NV	Block Island Harbor of Refuge (Old Harbor)	N							2
CSRM	Southeast Lighthouse, Block Island	C	• • •	•	•	•	•	•	

Project Type

CSRM = Coastal Storm Risk Management
NV = Navigation
ER = Ecosystem Restoration

Project Reliability

Indicated by background colors:

Green = Good (CSRM, NV)
Yellow = Intermediate (CSRM), Moderate (NV)
Orange = Poor (NV)
Pink = Failing (NV)
Red = Poor (CSRM), Failed (NV)
Purple = Unconstructed (CSRM)

Phase

S = Study
E = Pre-construction engineering and design
A = Awaiting initial construction funds
P = Partial construction funds received
C = Initial construction completed
U = Under Construction
R = Renourishment(s) initiated
N = Navigation maintenance

Extent of Resources at Risk

Coastal Storm Risk Management

• • • = Significant
• • = Moderate
• = Minimal
x = None

Navigation

1 = Demonstrated highest economic impact or >10M Tons. Imminent life safety impact.
2 = Demonstrated high economic impact or 5-10M Tons. Probable life safety impact.
3 = Demonstrated moderate economic impact or 1-5M Tons. Possible life safety impact.
4 = Low economic impact or <1M Tons. No life safety impact.
5 = Negligible economics (Recreation Harbors, No commercial Activity). No life safety impact.

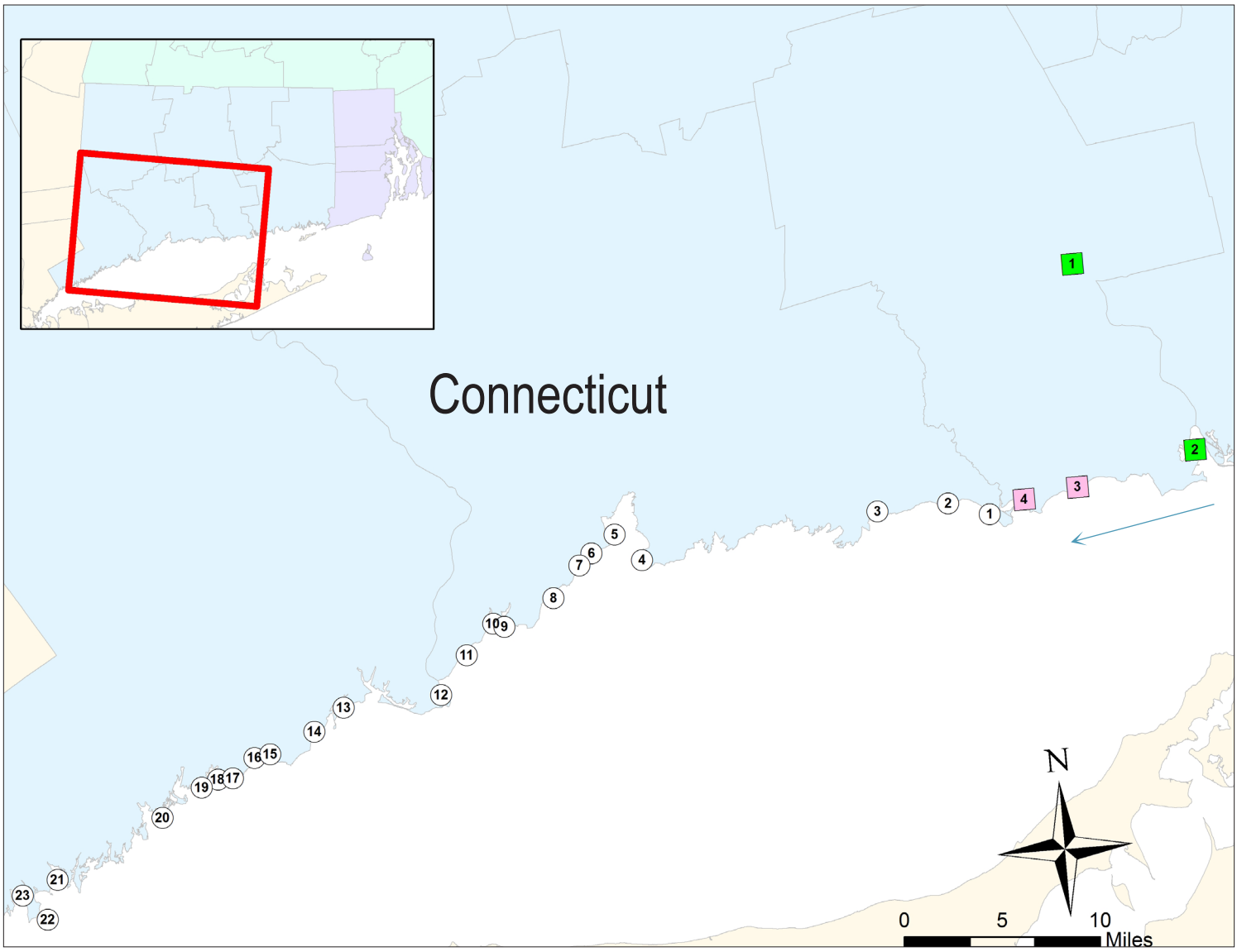
For complete definitions see page 7.

Rhode Island

Project Name and Project Reliability	Phase	Estimated Future Federal Costs					
		Total (FY 2013 - FY 2017)	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
Geographic Area: South Shore Rhode Island							
Fox Point Hurricane Barrier, Providence	C	$0	$0	$0	$0	$0	$0
Oakland Beach, Warwick	C	$0	$0	$0	$0	$0	$0
Cliff Walk	C	$0	$0	$0	$0	$0	$0
Geographic Area: Narragansett Bay							
Pt. Judith Pond & Harbor of Refuge - Refuge Anchorage	N	$0	$0	$0	$0	$0	$0
Pt. Judith Pond & Harbor of Refuge - Galillee Harbor Channels	N	$0	$0	$0	$0	$0	$0
Sand Hill Cove Beach	C	$0	$0	$0	$0	$0	$0
Matunuck Beach, South Kingstown	C	$0	$0	$0	$0	$0	$0
Misquamicut Beach, Westerly	C	$0	$0	$0	$0	$0	$0
Pawcatuck River - Sandy Point Channel	N	$3,500,000	$0	$3,500,000	$0	$0	$0
Little Narragansett Bay	N	$3,000,000	$0	$0	$3,000,000	$0	$0
Pawcatuck River - Watch Hill Cove	N	$0	$0	$0	$0	$0	$0
Great Salt Pond (New Harbor)	N	$500,000	$0	$250,000	$0	$250,000	$0
Block Island Harbor of Refuge (Old Harbor)	N	$600,000	$0	$0	$300,000	$0	$300,000
Southeast Lighthouse, Block Island	C	$0	$0	$0	$0	$0	$0
Totals		$7,600,000	$0	$3,750,000	$3,300,000	$250,000	$300,000

Opportunities for Action

1. Recent maintenance dredging of the **Providence River** yielded no suitable nourishment material.
2. Recent maintenance dredging activities from **Pt. Judith Pond** were placed near shore to nourish **Matunuck Beach.**
3. Recent maintenance of the **Great Salt Pond (New Harbor)** and **Block Island Harbor of Refuge (Old Harbor)** resulted in near shore disposal to nourish local beaches. These maintenance activities were combined utilizing the USACE hopper dredge (The Currituck). Opportunities to combine dredging activities like this are dependent on timely appropriations.


Connecticut
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Miles
Direction of sediment flow

Connecticut

Key	Type	Project Name
		Geographic Area: Western Connecticut
1	CSRM	Stamford Hurricane Barrier
2	CSRM	Burrial Hill Beach, Westport
3	CSRM	Calf Pasture Beach Park, Norwalk
4	CSRM	Compo Beach, Westport
5	CSRM	Cove Island, Stamford
6	CSRM	Cummings Park, Stamford
7	CSRM	Gulf Beach, Milford
8	CSRM	Jennings Beach, Fairfield
9	CSRM	Prospect Beach, West Haven
10	CSRM	Sasco Hill Beach, Fairfield
11	CSRM	Seaside Park
12	CSRM	Sherwood Island State Park, Westport
13	CSRM	Short Beach
14	CSRM	Silver Beach to Cedar Beach
15	CSRM	Southport Beach
16	CSRM	Woodmont Beach, Milford
17	CSRM	Sea Bluff Beach, West Haven
18	CSRM	Gulf Street
19	CSRM	Sandy Point Outfall, West Haven
		Geographic Area: Eastern Connecticut
1	NV	Connecticut River Below Hartford - Saybrook Shoals (Entrance)
2	NV	Connecticut River Below Hartford - Lower Bars (Below Middletown)
20	CSRM	Guilford Point Beach (Jacobs Beach), Guilford
3	NV	Patchogue River
4	NV	Clinton Harbor
21	CSRM	Hammonasset Beach, Madison
22	CSRM	Lighthouse Point Park, Area 9
23	CSRM	Middle Beach

Coastal Storm Risk Management Project Reliability

- = GOOD
- = INTERMEDIATE
- = POOR
- = UNCONSTRUCTED
- = UNASSIGNED

Navigation Project Reliability

- = GOOD
- = MODERATE
- = POOR
- = FAILING
- = FAILED
- = UNASSIGNED

△ = INLET ONLY, NOT A FEDERAL NAVIGATION PROJECT

Calf Pasture Beach

Sherwood Island Park

Connecticut

Project Type	Project Name and Project Reliability	Phase	Extent of Resources at Risk: Structures (residential, commercial)	Environment and Habitat	Infrastructure (roads, water/sewer lines, boardwalks, navigation structures)	Critical Facilities (police, fire, schools, hospitals, nursing homes)	Evacuation and Re-entry Routes	Recreation	Consequence/ Economic Impact Rating
Geographic Area: Western Connecticut									
CSRM	Stamford Hurricane Barrier	C	•	•	•	•	•	•••	
CSRM	Burrial Hill Beach, Westport	C	•	•	•	•	•	•••	
CSRM	Calf Pasture Beach Park, Norwalk	C	•	•	•	•	•	•••	
CSRM	Compo Beach, Westport	C	•	•	•	•	•	•••	
CSRM	Cove Island, Stamford	C	•	•	•	•	•	•••	
CSRM	Cummings Park, Stamford	C	•	•	•	•	•	•••	
CSRM	Gulf Beach, Milford	C	•	•	•	•	•	••	
CSRM	Jennings Beach, Fairfield	C	•	•	•	•	•	••	
CSRM	Prospect Beach, West Haven	C	••	•	•	•	•	••	
CSRM	Sasco Hill Beach, Fairfield	C	•	•	•	•	•	••	
CSRM	Seaside Park	C	•	•	•	•	•	••	
CSRM	Sherwood Island State Park, Westport	C	•	•	•	•	•	••	
CSRM	Short Beach	C	•	•	•	•	•	••	
CSRM	Silver Beach to Cedar Beach	C	•	•	•	•	•	••	
CSRM	Southport Beach	C	•	•	•	•	•	••	
CSRM	Woodmont Beach, Milford	C	•	•	•	•	•	••	
CSRM	Sea Bluff Beach, West Haven	C	•	•	•••	•	•	••	
CSRM	Gulf Street	C	•	•	•••	•	•	•	
CSRM	Sandy Point Outfall, West Haven	C	•	•	•	•	•	•	
Geographic Area: Eastern Connecticut									
NV	Connecticut River Below Hartford - Saybrook Shoals (Entrance)	N							2
NV	Connecticut River Below Hartford - Lower Bars (Below Middletown)	N							2
CSRM	Guilford Point Beach (Jacobs Beach), Guilford		•	•	•	•	•	•••	
NV	Patchogue River	N							4
NV	Clinton Harbor	N							4
CSRM	Hammonasset Beach, Madison	C	•	•	•	•	•	•••	
CSRM	Lighthouse Point Park, Area 9	C	•	•	•	•	•	•••	
CSRM	Middle Beach	C	•	•	•	•	•	••	

Project Type

CSRM = Coastal Storm Risk Management
NV = Navigation
ER = Ecosystem Restoration

Project Reliability

Indicated by background colors:

Green = Good (CSRM, NV)
Yellow = Intermediate (CSRM), Moderate (NV)
Orange = Poor (NV)
Pink = Failing (NV)
Red = Poor (CSRM), Failed (NV)
Purple = Unconstructed (CSRM)

Phase

S = Study
E = Pre-construction engineering and design
A = Awaiting initial construction funds
P = Partial construction funds received
C = Initial construction completed
U = Under Construction
R = Renourishment(s) initiated
N = Navigation maintenance

Extent of Resources at Risk

Coastal Storm Risk Management

••• = Significant
•• = Moderate
• = Minimal
x = None

Navigation

1 = Demonstrated highest economic impact or >10M Tons. Imminent life safety impact.
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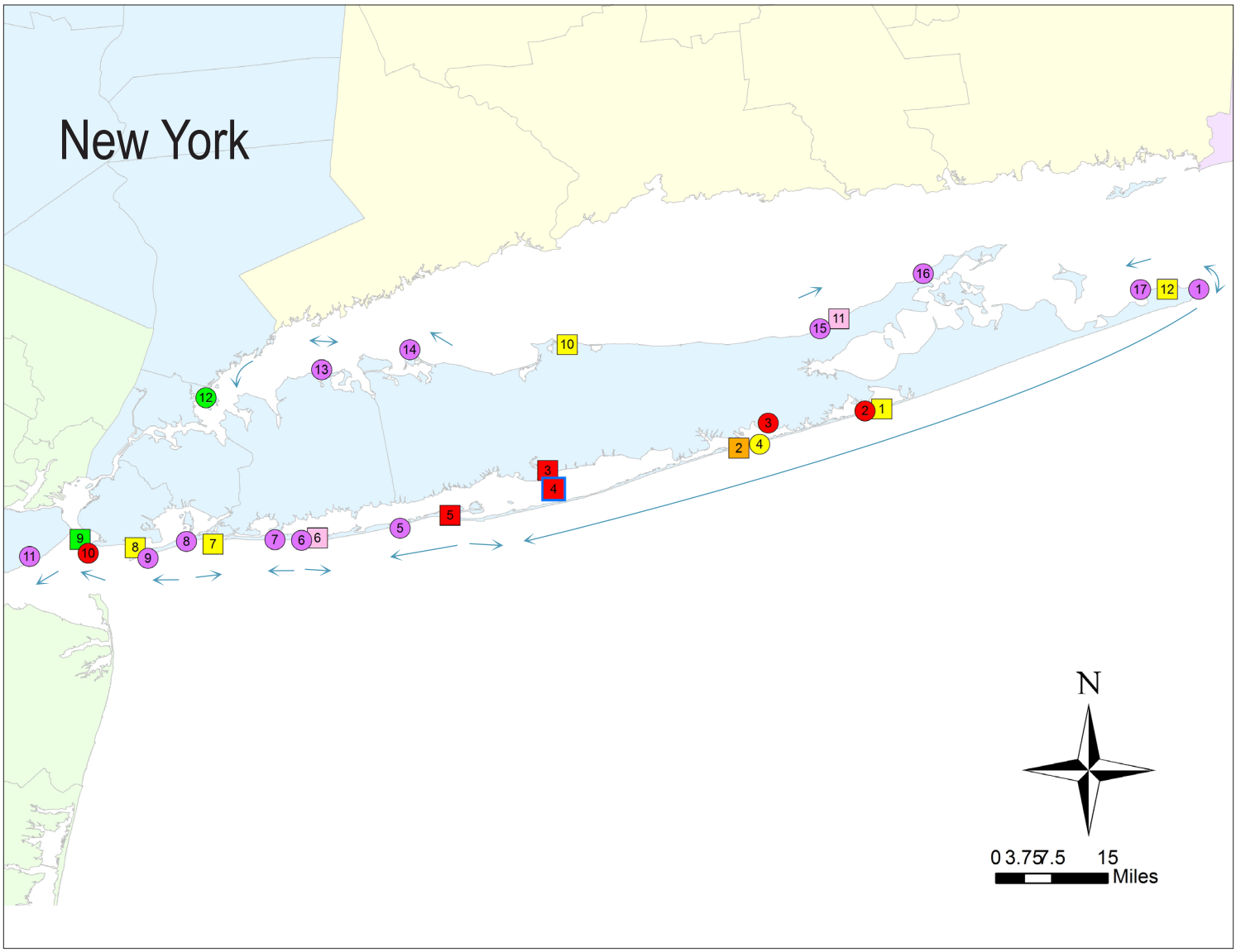
3 = Demonstrated moderate economic impact or 1-5M Tons. Possible life safety impact.
4 = Low economic impact or <1M Tons. No life safety impact.
5 = Negligible economics (Recreation Harbors, No commercial Activity). No life safety impact.

For complete definitions see page 7.

Connecticut

Project Name and Project Reliability	Phase	Estimated Future Federal Costs					
		Total (FY 2013 - FY 2017)	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
Geographic Area: Western Connecticut							
Stamford Hurricane Barrier	C	$0	$0	$0	$0	$0	$0
Burrial Hill Beach, Westport	C	$0	$0	$0	$0	$0	$0
Calf Pasture Beach Park, Norwalk	C	$0	$0	$0	$0	$0	$0
Compo Beach, Westport	C	$0	$0	$0	$0	$0	$0
Cove Island, Stamford	C	$0	$0	$0	$0	$0	$0
Cummings Park, Stamford	C	$0	$0	$0	$0	$0	$0
Gulf Beach, Milford	C	$0	$0	$0	$0	$0	$0
Jennings Beach, Fairfield	C	$0	$0	$0	$0	$0	$0
Prospect Beach, West Haven	C	$0	$0	$0	$0	$0	$0
Sasco Hill Beach, Fairfield	C	$0	$0	$0	$0	$0	$0
Seaside Park	C	$0	$0	$0	$0	$0	$0
Sherwood Island State Park, Westport	C	$0	$0	$0	$0	$0	$0
Short Beach	C	$0	$0	$0	$0	$0	$0
Silver Beach to Cedar Beach	C	$0	$0	$0	$0	$0	$0
Southport Beach	C	$0	$0	$0	$0	$0	$0
Woodmont Beach, Milford	C	$0	$0	$0	$0	$0	$0
Sea Bluff Beach, West Haven	C	$0	$0	$0	$0	$0	$0
Gulf Street	C	$0	$0	$0	$0	$0	$0
Sandy Point Outfall, West Haven	C	$0	$0	$0	$0	$0	$0
Geographic Area: Eastern Connecticut							
Connecticut River Below Hartford - Saybrook Shoals (Entrance)	N	$0	$0	$0	$0	$0	$0
Connecticut River Below Hartford - Lower Bars (Below Middletown)	N	$0	$0	$0	$0	$0	$0
Guilford Point Beach (Jacobs Beach), Guilford		$0	$0	$0	$0	$0	$0
Patchogue River	N	$250,000	$0	$0	$250,000	$0	$0
Clinton Harbor	N	$1,400,000	$0	$1,400,000	$0	$0	$0
Hammonasset Beach, Madison	C	$0	$0	$0	$0	$0	$0
Lighthouse Point Park, Area 9	C	$0	$0	$0	$0	$0	$0
Middle Beach	C	$0	$0	$0	$0	$0	$0
Totals		$1,650,000	$0	$1,400,000	$250,000	$0	$0


New York
N
0 3.75 7.5 15
Miles
Direction of sediment flow

New York

PROJECT LEGEND

Key	Type	Project Name
		Geographic Area: South Shore of Long Island and Staten Island
1	CSRM	Montauk Point
1	NV	Shinnecock Inlet
2	CSRM	West of Shinnecock Inlet
3	CSRM	Fire Island Inlet to Shores Westerly
4	CSRM	Westhampton
2	NV	Moriches Inlet
3	NV	Great South Bay
4	NV	Long Island Intracoastal
5	NV	Fire Island Inlet
5	CSRM	Fire Island Inlet to Montauk Point, NY Reformulation
6	NV	Jones Inlet
6	CSRM	Point Lookout/Jones Inlet Section 204
7	CSRM	Atlantic Coast of Long Island: Jones Inlet to Rockaway Inlet - Long Beach Island
7	NV	East Rockaway Inlet
8	CSRM	East Rockaway Inlet to Rockaway Inlet Reformulation
9	CSRM	Plumb Beach Section 204
8	NV	Rockaway Inlet
10	CSRM	Coney Island
9	NV	Ambrose Channel
11	CSRM	South Shore of Staten Island
		Geographic Area: North Shore of Long Island
12	CSRM	Orchard Beach
13	CSRM	Bayville
14	CSRM	Asharoken
10	NV	Port Jefferson Harbor
15	CSRM	Mattituck Section 111
11	NV	Mattituck Inlet
16	CSRM	Hashamomuck Cove
17	CSRM	Lake Montauk Harbor
12	NV	Lake Montauk Harbor

Coastal Storm Risk Management Project Reliability

- = GOOD
- = INTERMEDIATE
- = POOR
- = UNCONSTRUCTED
- = UNASSIGNED

Navigation Project Reliability

- = GOOD
- = MODERATE
- = POOR
- = FAILING
- = FAILED
- = UNASSIGNED

△ = INLET ONLY, NOT A FEDERAL NAVIGATION PROJECT

□ ○ = STATEWIDE PROJECTS OUTLINED

□ ○ = REGIONAL PROJECTS OUTLINED

Westhampton (before)

Westhampton (after)

New York

Project Type	Project Name and Project Reliability	Phase	Extent of Resources at Risk: Structures (residential, commercial)	Environment and Habitat	Infrastructure (roads, water/sewer lines, boardwalks, navigation structures)	Critical Facilities (police, fire, schools, hospitals, nursing homes)	Evacuation and Re-entry Routes	Recreation	Consequence/ Economic Impact Rating
			Geographic Area: South Shore of Long Island and Staten Island						
CSRM	Montauk Point	E	••	•	•	•	x	•••	
NV	Shinnecock Inlet	N							3
CSRM	West of Shinnecock Inlet	R	•••	•••	•••	•••	•	••	
CSRM/NV[1]	Fire Island Inlet to Shores Westerly	R	•••	•••	•••	••	•••	•••	
CSRM	Westhampton	R	•••	•••	••	x	•••	••	
NV	Moriches Inlet	N							3
NV	Great South Bay	N							4
NV	Long Island Intracoastal	N							2
NV	Fire Island Inlet	N							2
CSRM[2]	Fire Island Inlet to Montauk Point, NY Reformulation	S	•••	••	•••	•••	•••	•••	
NV	Jones Inlet	N							4
CSRM	Point Lookout/Jones Inlet Section 204	S	••	•	••	•	•••	•••	
CSRM	Atlantic Coast of Long Island: Jones Inlet to Rockaway Inlet - Long Beach Island	E	•••	•••	•••	••	•••	•••	
NV	East Rockaway Inlet	N							2
CSRM	East Rockaway Inlet to Rockaway Inlet Reformulation	S	•••	••	••	••	•••	•••	
CSRM	Plumb Beach Section 204	S	x	x	x	x	x	x	
NV	Rockaway Inlet	N							3
CSRM[3]	Coney Island	R	•••	x	•••	••	•••	••	
NV	Ambrose Channel	N							1
CSRM	South Shore of Staten Island	S	•••	•••	•••	••	•	••	

Project Type

CSRM = Coastal Storm Risk Management
NV = Navigation
ER = Ecosystem Restoration

Project Reliability

Indicated by background colors:

Green = Good (CSRM, NV)
Yellow = Intermediate (CSRM), Moderate (NV)
Orange = Poor (NV)
Pink = Failing (NV)
Red = Poor (CSRM), Failed (NV)
Purple = Unconstructed (CSRM)

Phase

S = Study
E = Pre-construction engineering and design
A = Awaiting initial construction funds
P = Partial construction funds received
C = Initial construction completed
U = Under Construction
R = Renourishment(s) initiated
N = Navigation maintenance

Extent of Resources at Risk

Coastal Storm Risk Management

••• = Significant
•• = Moderate
• = Minimal
x = None

Navigation

1 = Demonstrated highest economic impact or >10M Tons. Imminent life safety impact.
2 = Demonstrated high economic impact or 5-10M Tons. Probable life safety impact.
3 = Demonstrated moderate economic impact or 1-5M Tons. Possible life safety impact.
4 = Low economic impact or <1M Tons. No life safety impact.
5 = Negligible economics (Recreation Harbors, No commercial Activity). No life safety impact.

For complete definitions see page 7.

New York

Project Name and Project Reliability	Phase	Estimated Future Federal Costs					
		Total (FY 2013 - FY 2017)	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
		Geographic Area: South Shore of Long Island and Staten Island					
Montauk Point	E	$8,100,000	$0	$100,000	$500,000	$500,000	$7,000,000
Shinnecock Inlet	N	$10,760,000	$150,000	$450,000	$10,000,000	$100,000	$60,000
West of Shinnecock Inlet	R	$0	$0	$0	$0	$0	$0
Fire Island Inlet to Shores Westerly	R	$44,290,000	$100,000	$ 26,740,000	$ 100,000	$ 350,000	$ 17,000,000
Westhampton	R	$20,900,000	$10,000,000	$300,000	$300,000	$300,000	$10,000,000
Moriches Inlet	N	$8,220,000	$450,000	$7,500,000	$150,000	$60,000	$60,000
Great South Bay	N	$5,350,000	$60,000	$250,000	$4,000,000	$1,000,000	$40,000
Long Island Intracoastal	N	$3,560,000	$100,000	$60,000	$250,000	$3,000,000	$150,000
Fire Island Inlet	N	$44,340,000	$26,740,000	$100,000	$350,000	$17,000,000	$150,000
Fire Island Inlet to Montauk Point, NY Reformulation	S	$25,250,000	$750,000	$1,500,000	$1,500,000	$1,500,000	$20,000,000
Jones Inlet	N	$7,200,000	$250,000	$6,500,000	$150,000	$150,000	$150,000
Point Lookout/Jones Inlet Section 204	S	$1,150,000	$100,000	$1,000,000	$25,000	$25,000	$0
Atlantic Coast of Long Island: Jones Inlet to Rockaway Inlet - Long Beach Island	E	$70,500,000	$500,000	$10,000,000	$20,000,000	$20,000,000	$20,000,000
East Rockaway Inlet	N	$24,400,000	$6,000,000	$4,600,000	$4,600,000	$4,600,000	$4,600,000
East Rockaway Inlet to Rockaway Inlet Reformulation	S	$26,500,000	$500,000	$500,000	$500,000	$5,000,000	$20,000,000
Plumb Beach Section 204	S	$5,000,000	$5,000,000	$0	$0	$0	$0
Rockaway Inlet	N	$14,750,000	$250,000	$7,000,000	$250,000	$7,000,000	$250,000
Coney Island	R	$7,600,000	$6,000,000	$1,000,000	$200,000	$200,000	$200,000
Ambrose Channel	N	$320,000	$0	$60,000	$100,000	$100,000	$60,000
South Shore of Staten Island	S	$43,500,000	$500,000	$1,500,000	$1,500,000	$20,000,000	$20,000,000

New York

Project Type	Project Name and Project Reliability	Phase	Extent of Resources at Risk (Cont.)						
			Structures (residential, commercial)	Environment and Habitat	Infrastructure (roads, water/sewer lines, boardwalks, navigation structures)	Critical Facilities (police, fire, schools, hospitals, nursing homes)	Evacuation and Re-entry Routes	Recreation	Consequence/ Economic Impact Rating
			Geographic Area: North Shore of Long Island						
CSRM	Orchard Beach	C	•	•	••	x	•	•••	
CSRM	Bayville	S	•••	••	•••	••	•••	••	
CSRM	Asharoken	S	••	•••	•••	x	•••	••	
NV	Port Jefferson Harbor	N							3
CSRM	Mattituck Section 111	S	••	••	•	x	x	•	
NV	Mattituck Inlet	N							3
CSRM	Hashamomuck Cove	S							
CSRM	Lake Montauk Harbor	S	•••	••	••	•	•••	••	
NV	Lake Montauk Harbor	N							3

Project Type

CSRM = Coastal Storm Risk Management
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ER = Ecosystem Restoration

Project Reliability

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S = Study
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Extent of Resources at Risk

Coastal Storm Risk Management

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For complete definitions see page 7.

Footnotes

(1) Fire Island Inlet to Shores Westerly: This project is navigation dredging of Fire Island Inlet with material placement on the down drift shore at Gilgo Beach.

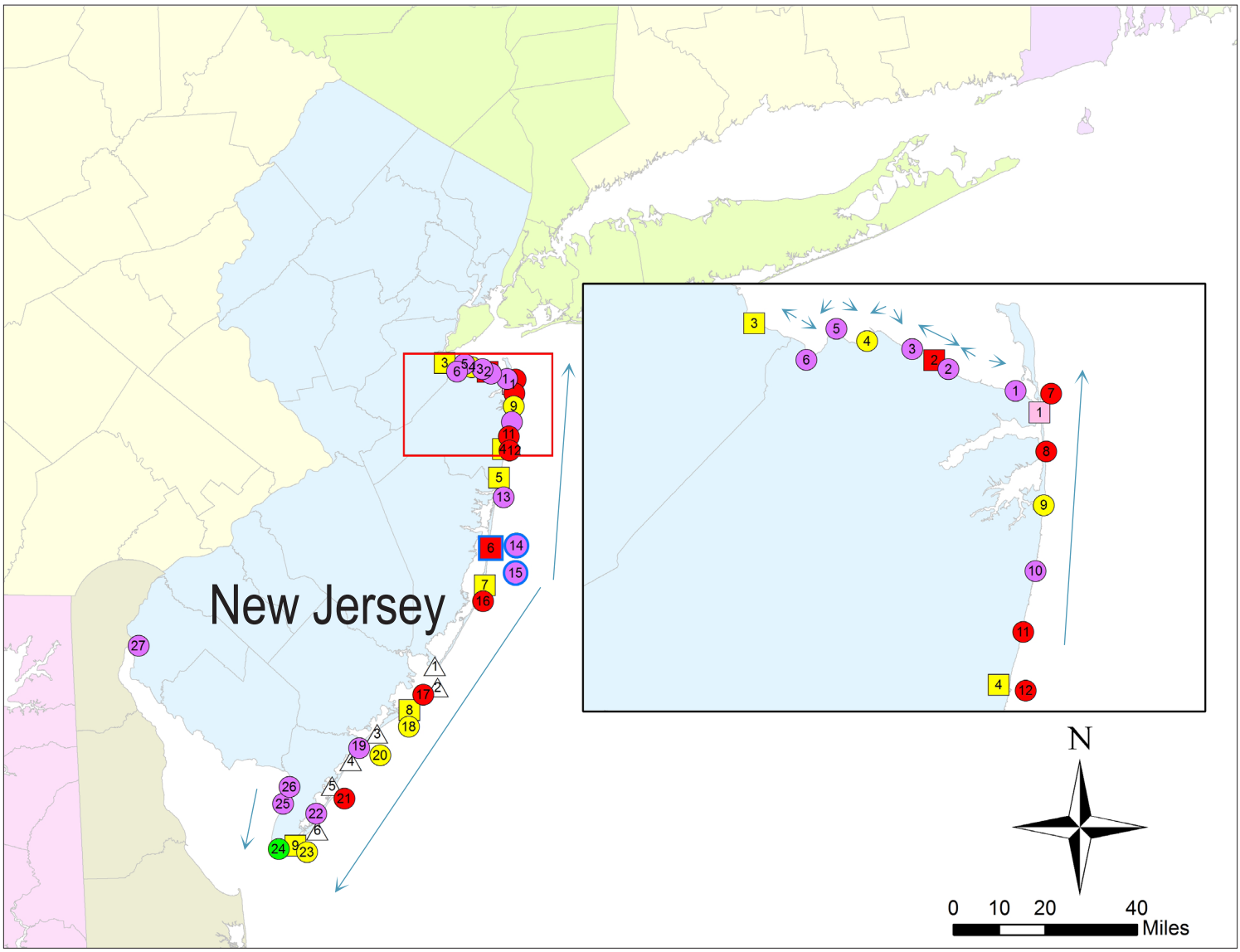
(2) Fire Island Inlet to Montauk Point Reformulation: Project reliability was estimated based on average conditions for the 83-mile project length. Reliability may vary for shorter reaches.

(3) Coney Island: Project has been constructed and is in the renourishment phase. Following the completion of initial construction, it became apparent that downdrift impacts were greater than originally anticipated and modifications (t-groins) are being added accordingly.

New York		Estimated Future Federal Costs (Cont.)					
		Total (FY 2013 - FY 2017)	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
Project Name and Project Reliability	Phase	Geographic Area: North Shore of Long Island					
Orchard Beach	C	$250,000	$50,000	$50,000	$50,000	$50,000	$50,000
Bayville	S	$500,000	$100,000	$100,000	$100,000	$100,000	$100,000
Asharoken	S	$600,000	$200,000	$100,000	$100,000	$100,000	$100,000
Port Jefferson Harbor	N	$0	$0	$40,000	$0	$0	$0
Mattituck Section 111	S	$2,500,000	$500,000	$1,900,000	$50,000	$25,000	$25,000
Mattituck Inlet	N	$1,660,000	$200,000	$1,300,000	$60,000	$40,000	$60,000
Hashamomuck Cove	S	$2,500,000	$500,000	$500,000	$500,000	$500,000	$500,000
Lake Montauk Harbor	S	$8,575,000	$0	$1,000,000	$7,500,000	$50,000	$25,000
Lake Montauk Harbor	N	$1,580,000	$60,000	$60,000	$60,000	$200,000	$1,200,000
Totals		$389,895,000	$59,060,000	$74,210,000	$52,895,000	$81,950,000	$121,780,000

Opportunities for Action

1. Once the **Atlantic Coast of Long Island: Jones Inlet to Rockaway Inlet - Long Beach Island, NY (Point Lookout)** project is constructed; maintenance of the adjacent **Jones Inlet** navigation channel could be changed to a five-year cycle. This change would match inlet maintenance with the storm damage reduction project's anticipated five-year renourishment cycle, and allow use of compatible, channel-dredged material for project renourishment.
2. Purchase of a small hydraulic dredge by the Town of Hempstead may provide opportunities to reduce renourishment needs at Long Beach - Pt. Lookout.
3. Material removed from **Fire Island Inlet** should continue to be placed on adjacent beaches.
4. Based on future project schedules, it may be advantageous to pair the **Atlantic Coast of Long Island: Jones Inlet to Rockaway Inlet – Long Beach Island, NY** project with the **Fire Island Inlet to Shores Westerly** project, and with the renourishment of **Coney Island**, to save $2 million to $3 million on mobilization/demobilization costs.
5. Depending on need, the maintenance of **Moriches Inlet** and **Shinnecock Inlet** navigation channels could be paired to save $2 million to $3 million in mobilization/demobilization costs.
6. The National Park Service's Gateway National Recreation Area, Great Kills Unit and the **South Shore of Staten Island** project will have great connectivity with this area following sand placement. Littoral material, which will be transported into the National Recreation Area from the project shoreline, is expected to reduce erosion problems there.
7. During the **South Shore of Staten Island** project construction, compatible material from the maintenance of **Ambrose Channel** could potentially be used as project beach fill.
8. The projects at **Lake Montauk Harbor** will connect channel dredging with downdrift coastal storm risk management.
9. Dredging of **Mattituck Section 111** could be combined with the **Mattituck Inlet** navigation project to reduce mobilization/demobilization costs. Funding would need to be received as specified in the estimated future federal costs table.
10. The Jones Inlet Section 204 study leverages economic and engineering modeling and analyses done under adjacent Feasibility Studies.


New Jersey
N
0 10 20 40
Miles
Direction of sediment flow

New Jersey

PROJECT LEGEND

Key	Type	Project Name
Geographic Area: Northern/Central New Jersey, Raritan, and Sandy Hook Bays (New York District)		
1	NV	Shrewsbury River
1	CSRM	Highlands
2	CSRM	Leonardo
2	NV	Shoal Harbor and Compton Creek
3	CSRM	Port Monmouth
4	CSRM	Raritan & Sandy Hook Bays: Keansburg, East Keansburg, & Laurence Harbor Sec. 506
5	CSRM	Union Beach
6	CSRM	Keyport
3	NV	Cheesequake Creek River
Geographic Area: Atlantic Coast of Central New Jersey (New York District)		
7	CSRM	Sea Bright - Manasquan: Sea Bright
8	CSRM	Sea Bright - Manasquan: Monmouth Beach
9	CSRM	Sea Bright - Manasquan: Long Branch
10	CSRM	Sea Bright - Manasquan: Elberon to Loch Arbour
11	CSRM	Sea Bright - Manasquan: Asbury to Avon
4	NV	Shark River Inlet
12	CSRM	Sea Bright - Manasquan: Belmar to Manasquan
Geographic Area: Atlantic Coast of Southern NJ (Philadelphia District)		
5	NV	Manasquan Inlet
6	NV	New Jersey Intracoastal Waterway
13	CSRM	Manasquan Inlet - Barnegat Inlet
14	ER	NJ Intracoastal Waterway Ecosystem Restoration Study
15	ER	NJ Alternative Long-term Nourishment Study
7	NV	Barnegat Inlet
16	CSRM	Barnegat Inlet - Little Egg Inlet (LBI)
1	NV	Little Egg Inlet - not a federal Nav Project
2	NV	Brigantine Inlet - not a federal Nav Projec
17	CSRM	Brigantine Island
8	NV	Absecon Inlet
18	CSRM	Absecon Island
3	NV	Great Egg Harbor Inlet - not a federal Nav Projec
19	CSRM	Great Egg Harbor Inlet - Townsends Inlet
20	CSRM	Ocean City (Great Egg Harbor Inlet and Peck Beach)
4	NV	Corson Inlet - not a federal Nav Projec
5	NV	Townsends Inlet - not a federal Nav Projec
21	CSRM	Townsends Inlet - Cape May Inlet
6	NV	Hereford Inlet - not a federal Nav Projec
22	CSRM	Hereford Inlet - Cape May Inlet
9	NV	Cold Spring Inlet
23	CSRM	Cape May City (Cape May Inlet to Lower Township)
24	CSRM	Lower Cape May Meadows - Cape May Pt
Geographic Area: Delaware Bay Shore of Southern NJ (Philadelphia District)		
25	CSRM	Delaware Bay Coastline, DE & NJ: Villas and Vicinity
26	CSRM	Delaware Bay Coastline, DE & NJ: Reeds Beach to Pierces Point
27	CSRM	Delaware Bay Coastline, DE & NJ: Oakwood Beach

Coastal Storm Risk Management Project Reliability

- = GOOD
- = INTERMEDIATE
- = POOR
- = UNCONSTRUCTED
- = UNASSIGNED

Navigation Project Reliability

- = GOOD
- = MODERATE
- = POOR
- = FAILING
- = FAILED
- = UNASSIGNED

△ = INLET ONLY, NOT A FEDERAL NAVIGATION PROJECT

□ ○ = STATEWIDE PROJECTS OUTLINED

□ ○ = REGIONAL PROJECTS OUTLINED

Cape May Point (before)

Cape May Point (after)

New Jersey

Project Type	Project Name and Project Reliability	Phase	Extent of Resources at Risk: Structures (residential, commercial)	Environment and Habitat	Infrastructure (roads, water/sewer lines, boardwalks, navigation structures)	Critical Facilities (police, fire, schools, hospitals, nursing homes)	Evacuation and Re-entry Routes	Recreation	Consequence/ Economic Impact Rating
Geographic Area: Northern/Central New Jersey, Raritan, and Sandy Hook Bays (New York District)									
NV	Shrewsbury River	N							3
CSRM	Highlands	S	•••	•	•	x	•	•	
CSRM	Leonardo	S	••	•	•	•	•	••	
NV	Shoal Harbor and Compton Creek	N							3
CSRM	Port Monmouth	P	•••	•••	••	•	••	•••	
CSRM	Raritan Bay and Sandy Hook Bay: Keansburg, East Keansburg, and Laurence Harbor Section 506	R	••	•	•	•	•	••	
CSRM	Union Beach	E	•••	••	••	•	•	•	
CSRM	Keyport	S	••	•	•	•	•	•	
NV	Cheesequake Creek	N							5
Geographic Area: Atlantic Coast of Central New Jersey (New York District)									
CSRM	Sea Bright - Manasquan: Sea Bright	R	•••	•••	•••	••	•••	•••	
CSRM	Sea Bright - Manasquan: Monmouth Beach	R	•••	•••	•••	••	•••	•••	
CSRM	Sea Bright - Manasquan: Long Branch	R	•••	••	•••	••	••	•••	
CSRM	Sea Bright - Manasquan: Elberon to Loch Arbour	E	•••	••	••	••	••	•••	
CSRM	Sea Bright - Manasquan: Asbury to Avon	C	•••	••	••	••	•	•••	
NV	Shark River Inlet	N							2
CSRM	Sea Bright - Manasquan: Belmar to Manasquan	C	•••	••	••	••	•	•••	

Project Type

CSRM = Coastal Storm Risk Management
NV = Navigation
ER = Ecosystem Restoration

Project Reliability

Indicated by background colors:

Green = Good (CSRM, NV)
Yellow = Intermediate (CSRM), Moderate (NV)
Orange = Poor (NV)
Pink = Failing (NV)
Red = Poor (CSRM), Failed (NV)
Purple = Unconstructed (CSRM)

Phase

S = Study
E = Pre-construction engineering and design
A = Awaiting initial construction funds
P = Partial construction funds received
C = Initial construction completed
U = Under Construction
R = Renourishment(s) initiated
N = Navigation maintenance

Extent of Resources at Risk

Coastal Storm Risk Management

••• = Significant
•• = Moderate
• = Minimal
x = None

Navigation

1 = Demonstrated highest economic impact or >10M Tons. Imminent life safety impact.
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5 = Negligible economics (Recreation Harbors, No commercial Activity). No life safety impact.

For complete definitions see page 7.

Footnotes

(1) Shrewsbury River and Shoal Harbor and Compton Creek: Estimated future federal costs shown for Shrewsbury River and Shoal Harbor and Compton Creek reflect sand and silt removal as the channel condition assessment depends on locatons of both.

New Jersey		Estimated Future Federal Costs					
		Total (FY 2013 - FY 2017)	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
Project Name and Project Reliability	Phase	Geographic Area: Northern/Central New Jersey, Raritan, and Sandy Hook Bays (New York District)					
Shrewsbury River	N	$10,520,000	$60,000	$60,000	$250,000	$10,000,000	$150,000
Highlands	S	$25,500,000	$500,000	$1,000,000	$8,000,000	$8,000,000	$8,000,000
Leonardo	S	$3,000,000	$500,000	$2,000,000	$500,000	$0	$0
Shoal Harbor and Compton Creek	N	$4,900,000	$200,000	$4,500,000	$100,000	$60,000	$40,000
Port Monmouth	P	$46,000,000	$3,000,000	$10,000,000	$11,000,000	$11,000,000	$11,000,000
Raritan Bay and Sandy Hook Bay: Keansburg, East Keansburg, and Laurence Harbor Section 506	R	$22,200,000	$550,000	$20,000,000	$550,000	$550,000	$550,000
Union Beach	E	$86,000,000	$500,000	$21,000,000	$22,000,000	$22,000,000	$20,500,000
Keyport	S	$0	$0	$0	$0	$0	$0
Cheesequake Creek	N	$1,300,000	$60,000	$200,000	$900,000	$100,000	$40,000
		Geographic Area: Atlantic Coast of Central New Jersey (New York District)					
Sea Bright - Manasquan: Sea Bright	R	$18,000,000	$18,000,000	$0	$0	$0	$0
Sea Bright - Manasquan: Monmouth Beach	R	$18,000,000	$0	$18,000,000	$0	$0	$0
Sea Bright - Manasquan: Long Branch	R	$18,000,000	$0	$0	$18,000,000	$0	$0
Sea Bright - Manasquan: Elberon to Loch Arbour	E	$0	$0	$0	$0	$0	$0
Sea Bright - Manasquan: Asbury to Avon	C	$18,000,000	$0	$0	$0	$18,000,000	$0
Shark River Inlet	N	$3,000,000	$600,000	$600,000	$600,000	$600,000	$600,000
Sea Bright - Manasquan: Belmar to Manasquan	C	$18,000,000	$0	$0	$0	$0	$18,000,000
Totals (New York District)		$292,420,000	$23,970,000	$77,360,000	$61,900,000	$70,310,000	$58,880,000

Opportunities for Action

1. Sand dredged from Manasquan Inlet for operations and maintenance is currently discharged north of the inlet along the **Sea Bright – Manasquan** project accomplishing sand bypassing.
2. All projects in the Atlantic Coast of Central New Jersey geographic area are interconnected via sediment flow. Estimated quantities for renourishment were based on construction of the entire 21-mile project length, and the prevailing littoral transport to the north. Lack of renourishment in the southerly project sections may have long-term impacts on the reliability of the total **Sea Bright – Manasquan** project.
3. Although not shown in the table, projects in the Atlantic Coast of Central New Jersey geographic area have great connectivity with the National Park Service's Gateway National Recreation Area, Sandy Hook Unit. For the last 18 years – since project construction was initiated between Sea Bright and Manasquan – littoral material has been transported into this National Recreation Area, where erosion has been dramatically reduced.
4. Nearshore placement of dredged material at **Shark River Inlet** should be continued for future operations to reduce renourishment needs in the Asbury to Avon reach of the **Sea Bright to Manasquan** Project.
5. Raritan Bay beach nourishment projects can utilize sand from the borrow area designated for the **Sea Bright to Manasquan** project off of Sandy Hook, eliminating costs for developing new borrow areas within Raritan Bay.
6. The potential exists to combine renourishment cycles for two projects, **Cape May Inlet to Lower Township** and **Lower Cape May Meadows**, and save approximately $1 million on mobilization/demobilization costs. Also, material removed from **Cape May Inlet** for operations and maintenance (approximately 100,000 cubic yards annually) could be placed immediately adjacent to the inlet on the **Cape May City to Lower Township** project.
7. **Absecon Island, Ocean City** and **Townsends Inlet to Cape May Inlet** coastal storm risk management projects all need renourishment and could be combined to save on mobilization/demobilization costs and contracting expenses. Borrow areas for each project are within the inlet located north of the respective project.
8. Material dredged from **Barnegat Inlet** for operations and maintenance could be placed on the **Barnegat Inlet – Little Egg Inlet (LBI)** coastal storm risk management project (approximately 200,000 to 300,000 cubic yards annually by hopper dredge and 3 miles away from the inlet; thus, cost-effectiveness would have to be considered).
9. Sand backpassing could be implemented at several of the southern barrier island projects in NJ **(Seven Mile Island, Absecon Island, Ocean City, etc.)** The procedure would involve transport of sand from the middle of each project to the northeast end where each project has experienced accelerated "hot spot" erosion that reduces the existing beachfill template below the authorized protection template. One benefit would be to assure the provision of the level of protection for which each project was authorized. This option also has the potential to reduce project life-cycle costs by eliminating one or more "conventional" nourishment contracts using ocean-going dredges with their associated higher mob/demob costs compared to backpassing from the beach.

New Jersey

Project Type	Project Name and Project Reliability	Phase	Extent of Resources at Risk (Cont.)						
			Structures (residential, commercial)	Environment and Habitat	Infrastructure (roads, water/sewer lines, boardwalks, navigation structures)	Critical Facilities (police, fire, schools, hospitals, nursing homes)	Evacuation Routes	Recreation	Consequence/ Economic Impact Rating
			Geographic Area: Atlantic Coast of Southern New Jersey (Philadelphia District)						
NV	Manasquan Inlet	N							3
NV	New Jersey Intracoastal Waterway	N							3
CSRM	Manasquan Inlet - Barnegat Inlet	A	•••	••	••	•••	•	•••	
ER	NJ Intracoastal Waterway Ecosystem Restoration Study	S	x	x	x	x	x	x	
ER	NJ Alternative Long-term Nourishment Study	S	x	x	x	x	x	x	
NV	Barnegat Inlet	N							2
CSRM	Barnegat Inlet - Little Egg Inlet (LBI)	P	•••	••	••	••	•	•••	
NV	Little Egg Inlet	Non-Fed							
NV	Brigantine Inlet	Non-Fed							
CSRM	Brigantine Island	R	•••	••	••	••	•	•••	
NV	Absecon Inlet	N							4
CSRM	Absecon Island	R	•••	•	•••	•••	•	•••	
NV	Great Egg Harbor Inlet	Non-Fed							
CSRM	Great Egg Harbor Inlet - Townsends Inlet	A	•••	••	••	•	•••	•••	
CSRM	Ocean City (Great Egg Harbor Inlet and Peck Beach)	R	•••	••	•••	••	•	•••	
NV	Corson Inlet	Non-Fed							
NV	Townsends Inlet	Non-Fed							
CSRM	Townsends Inlet - Cape May Inlet	R	•••	••	••	•	•	•••	
NV	Hereford Inlet	Non-Fed							
CSRM	Hereford Inlet - Cape May Inlet	S	•••	••	•••	•	•	•••	
NV	Cold Spring Inlet	N							3
CSRM	Cape May City (Cape May Inlet to Lower Township)	R	•••	••	•••	•••	•	•••	
CSRM	Lower Cape May Meadows - Cape May Pt	R	••	•••	•	••	•	•	
			Geographic Area: Lower Cape May Meadows - Cape May Pt						
CSRM	Delaware Bay Coastline, DE & NJ: Villas and Vicinity	P	••	•••	••	•	•	••	
CSRM	Delaware Bay Coastline, DE & NJ: Reeds Beach to Pierces Point	P	••	•••	••	•	•	•	
CSRM	Delaware Bay Coastline, DE & NJ: Oakwood Beach	A	•••	••	•••	•	•	•	

Project Type

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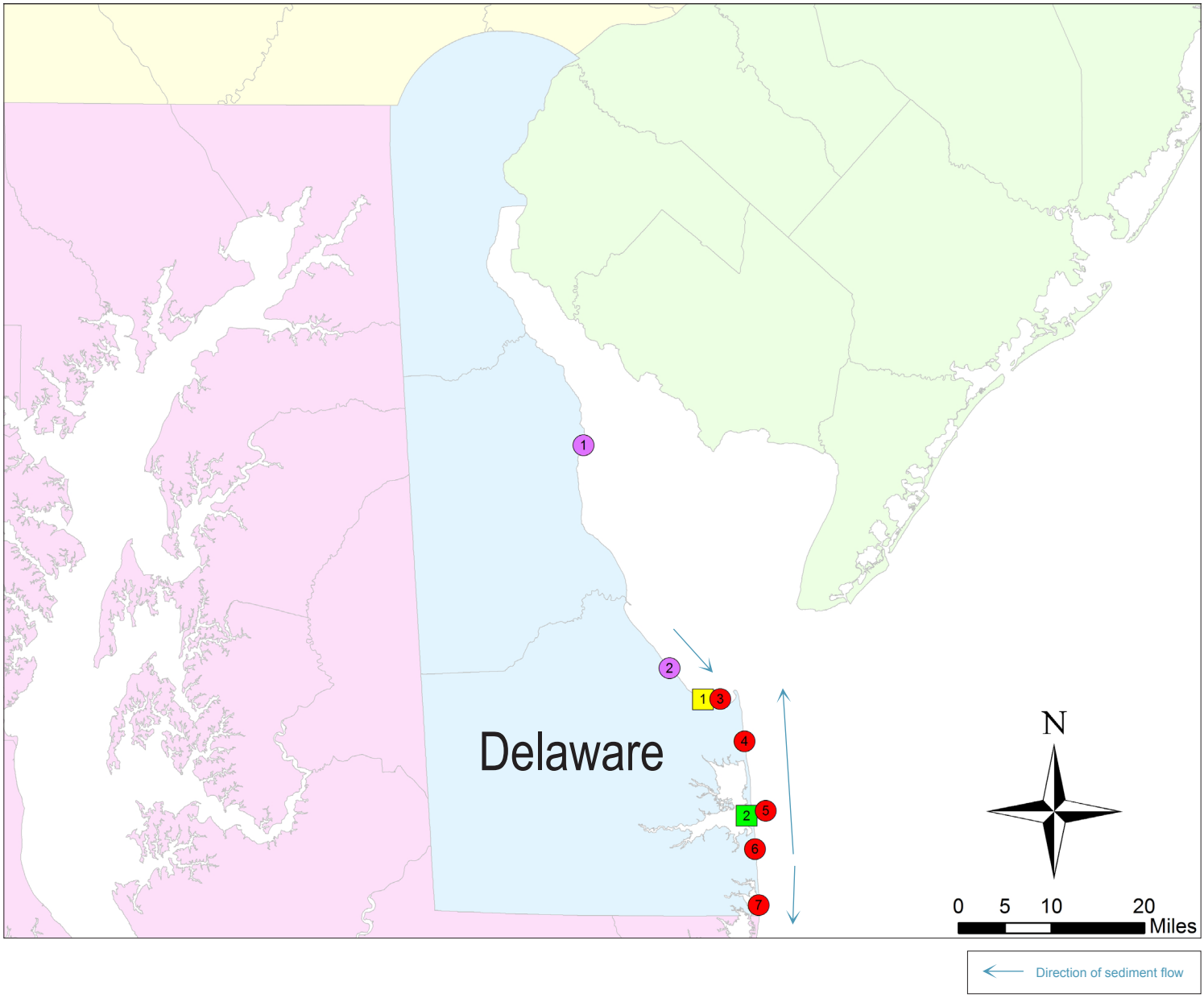
For complete definitions see page 7.

Footnotes

(1) Totals represenets the total estimated future federal costs for the entire state of New Jersey (New York and Philadelphia Districts combined).

New Jersey

Project Name and Project Reliability	Phase	Estimated Future Federal Costs (Cont.) Total (FY 2013 - FY 2017)	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
Geographic Area: Atlantic Coast of Southern New Jersey (Philadelphia District)							
Manasquan Inlet	N	$2,750,000	$550,000	$550,000	$550,000	$550,000	$550,000
New Jersey Intracoastal Waterway	N	$6,300,000	$2,300,000	$1,000,000	$1,000,000	$1,000,000	$1,000,000
Manasquan Inlet - Barnegat Inlet	A	$51,250,000	$250,000	$1,000,000	$20,000,000	$20,000,000	$10,000,000
NJ Intracoastal Waterway Ecosystem Restoration Study	S	$0	$0	$0	$0	$0	$0
NJ Alternative Long-term Nourishment Study	S	$1,309,000	$100,000	$309,000	$100,000	$300,000	$500,000
Barnegat Inlet	N	$3,825,000	$765,000	$765,000	$765,000	$765,000	$765,000
Barnegat Inlet - Little Egg Inlet (LBI)	P	$61,000,000	$13,600,000	$15,600,000	$600,000	$15,600,000	$15,600,000
Little Egg Inlet	Non-Fed						
Brigantine Inlet	Non-Fed						
Brigantine Island	R	$3,900,000	$3,580,000	$80,000	$80,000	$80,000	$80,000
Absecon Inlet	N	$0	$0	$0	$0	$0	$0
Absecon Island	R	$25,200,000	$12,000,000	$400,000	$400,000	$12,000,000	$400,000
Great Egg Harbor Inlet	Non-Fed						
Great Egg Harbor Inlet - Townsends Inlet	A	$57,500,000	$500,000	$12,000,000	$11,000,000	$22,000,000	$12,000,000
Ocean City (Great Egg Harbor Inlet and Peck Beach)	R	$12,000,000	$500,000	$500,000	$10,000,000	$500,000	$500,000
Corson Inlet	Non-Fed						
Townsends Inlet	Non-Fed						
Townsends Inlet - Cape May Inlet	R	$20,900,000	$300,000	$12,000,000	$300,000	$300,000	$8,000,000
Hereford Inlet	Non-Fed						
Hereford Inlet - Cape May Inlet	S	$20,800,000	$300,000	$250,000	$10,000,000	$10,000,000	$250,000
Cold Spring Inlet	N	$3,000,000	$600,000	$600,000	$600,000	$600,000	$600,000
Cape May City (Cape May Inlet to Lower Township)	R	$22,000,000	$7,200,000	$200,000	$7,200,000	$200,000	$7,200,000
Lower Cape May Meadows - Cape May Pt	R	$9,600,000	$400,000	$400,000	$400,000	$400,000	$8,000,000
Geographic Area: Delaware Bay Shore of Southern New Jersey (Philadelphia District)							
Delaware Bay Coastline, DE & NJ: Villas and Vicinity	P	$9,400,000	$9,000,000	$100,000	$100,000	$100,000	$100,000
Delaware Bay Coastline, DE & NJ: Reeds Beach to Pierces Point	P	$5,400,000	$5,000,000	$100,000	$100,000	$100,000	$100,000
Delaware Bay Coastline, DE & NJ: Oakwood Beach	A	$3,400,000	$250,000	$3,000,000	$50,000	$50,000	$50,000
Totals (Philadelphia District)		$319,534,000	$57,195,000	$48,854,000	$63,245,000	$84,545,000	$65,695,000
Totals [1]		$904,374,000	$105,135,000	$203,574,000	$187,045,000	$225,165,000	$183,455,000


Delaware
1
2
1
3
4
2
5
6
7
N
0 5 10 20
Miles
Direction of sediment flow

Delaware

PROJECT LEGEND

Key	Type	Project Name
Geographic Area: Delaware Bay Coast of Delaware		
1	CSRM	Delaware Bay Coastline: Port Mahon
2	CSRM	Delaware Bay Coastline: Broadkill Beach DE
1	NV	Roosevelt Inlet
3	CSRM	Delaware Bay Coastline: Roosevelt Inlet - Lewes Beach
4	CSRM	Delaware Coast, Cape Henlopen to Fenwick Island: Rehoboth Beach - Dewey Beach
2	NV	Indian River Inlet
5	CSRM	Delaware Coast Protection, Indian River Inlet Sand Bypassing
6	CSRM	Delaware Coast, Cape Henlopen to Fenwick Island: Bethany - South Bethany
7	CSRM	Delaware Coast, Cape Henlopen to Fenwick Island: Fenwick Island

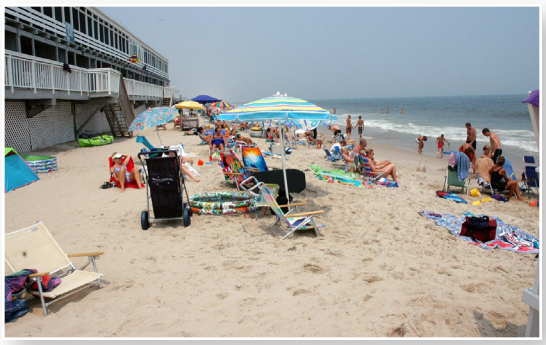
Coastal Storm Risk Management Project Reliability

- = GOOD
- = INTERMEDIATE
- = POOR
- = UNCONSTRUCTED
- = UNASSIGNED

Navigation Project Reliability

- = GOOD
- = MODERATE
- = POOR
- = FAILING
- = FAILED
- = UNASSIGNED

△ = INLET ONLY, NOT A FEDERAL NAVIGATION PROJECT



Dewey Beach (before)

Dewey Beach (after)

Delaware

Project Type	Project Name and Project Reliability	Phase	Extent of Resources at Risk: Structures (residential, commercial)	Environment and Habitat	Infrastructure (roads, water/sewer lines, boardwalks, navigation structures)	Critical Facilities (police, fire, schools, hospitals, nursing homes)	Evacuation Routes	Recreation	Consequence/ Economic Impact Rating
			Geographic Area: Delaware Bay Coast of Delaware						
CSRM	Delaware Bay Coastline: Port Mahon	P	•	• • •	• • •	•	• • •	•	
CSRM	Delaware Bay Coastline: Broadkill Beach DE	A	• •	• •	• •	•	•	• •	
NV	Roosevelt Inlet	N							3
CSRM	Delaware Bay Coastline: Roosevelt Inlet - Lewes Beach	R	• •	• •	•	•	•	• •	
CSRM	Delaware Coast, Cape Henlopen to Fenwick Island: Rehoboth Beach - Dewey Beach	R	• • •	•	• •	• •	•	• • •	
NV	Indian River Inlet	N							4
CSRM	Delaware Coast Protection, Indian River Inlet Sand Bypassing	R	• •	• •	• • •	•	• •	• • •	
CSRM	Delaware Coast, Cape Henlopen to Fenwick Island: Bethany - South Bethany	R	• • •	•	• • •	• •	•	• • •	
CSRM	Delaware Coast, Cape Henlopen to Fenwick Island: Fenwick Island	R	• • •	• •	• •	•	•	• • •	

Project Type

CSRM = Coastal Storm Risk Management

NV = Navigation

ER = Ecosystem Restoration

Project Reliability

Indicated by background colors:

Green = Good (CSRM, NV)

Yellow = Intermediate (CSRM), Moderate (NV)

Orange = Poor (NV)

Pink = Failing (NV)

Red = Poor (CSRM), Failed (NV)

Purple = Unconstructed (CSRM)

Phase

S = Study

E = Pre-construction engineering and design

A = Awaiting initial construction funds

P = Partial construction funds received

C = Initial construction completed

U = Under Construction

R = Renourishment(s) initiated

N = Navigation maintenance

Extent of Resources at Risk

Coastal Storm Risk Management

• • • = Significant

• • = Moderate

• = Minimal

x = None

Navigation

1 = Demonstrated highest economic impact or >10M Tons. Imminent life safety impact.

2 = Demonstrated high economic impact or 5-10M Tons. Probable life safety impact.

3 = Demonstrated moderate economic impact or 1-5M Tons. Possible life safety impact.

4 = Low economic impact or <1M Tons. No life safety impact.

5 = Negligible economics (Recreation Harbors, No commercial Activity). No life safety impact.

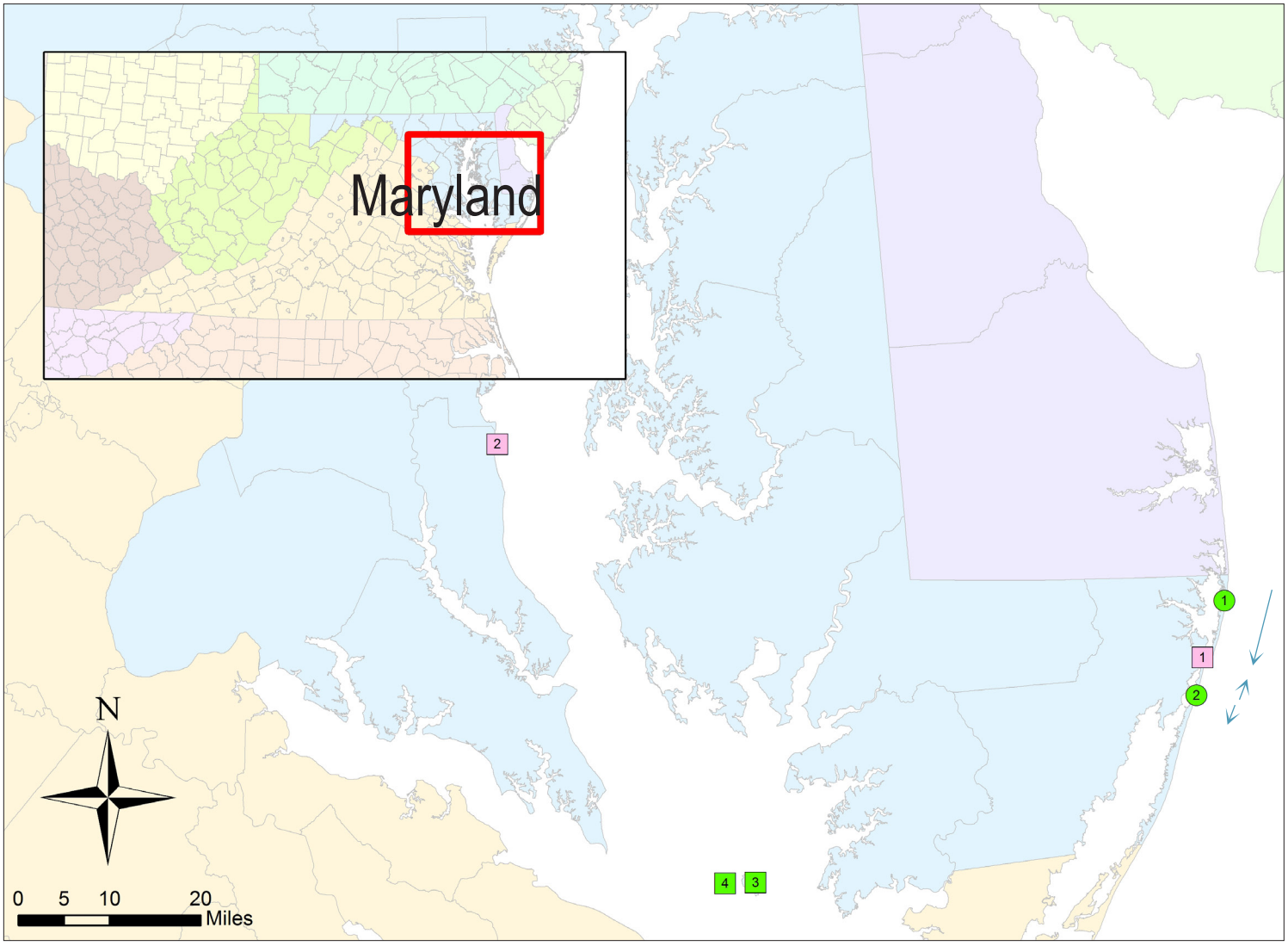
For complete definitions see page 7.

Delaware

Project Name and Project Reliability	Phase	Estimated Future Federal Costs					
		Total (FY 2013 - FY 2017)	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
		Geographic Area: Delaware Bay Coast of Delaware					
Delaware Bay Coastline: Port Mahon	P	$8,600,000	$8,200,000	$100,000	$100,000	$100,000	$100,000
Delaware Bay Coastline: Broadkill Beach DE	A	$9,650,000	$9,250,000	$100,000	$100,000	$100,000	$100,000
Roosevelt Inlet	N	$2,067,000	$985,000	$30,000	$32,000	$985,000	$35,000
Delaware Bay Coastline: Roosevelt Inlet - Lewes Beach	R	$8,550,000	$350,000	$350,000	$350,000	$3,500,000	$4,000,000
Delaware Coast, Cape Henlopen to Fenwick Island: Rehoboth Beach - Dewey Beach	R	$15,450,000	$150,000	$7,500,000	$150,000	$150,000	$7,500,000
Indian River Inlet	N	$3,900,000	$100,000	$100,000	$3,500,000	$100,000	$100,000
Delaware Coast Protection, Indian River Inlet Sand Bypassing	R	$3,000,000	$1,390,000	$380,000	$395,000	$410,000	$425,000
Delaware Coast, Cape Henlopen to Fenwick Island: Bethany - South Bethany	R	$15,450,000	$150,000	$7,500,000	$150,000	$150,000	$7,500,000
Delaware Coast, Cape Henlopen to Fenwick Island: Fenwick Island	R	$6,950,000	$3,250,000	$150,000	$150,000	$150,000	$3,250,000
Totals		$73,617,000	$23,825,000	$16,210,000	$4,927,000	$5,645,000	$23,010,000

Opportunities for Action

1. Some renourishment cycles for the **Cape Henlopen to Fenwick Island (Fenwick Island)** project could be combined with those for the adjacent Ocean City, Md., coastal storm risk management project (Baltimore District Corps of Engineers).
2. Within the state of Delaware, exclusive of Ocean City, MD, it would be possible to align the periodic nourishment of three projects – **(1) Rehoboth Beach-Dewey Beach, (2) Bethany/South Bethany, and (3) Fenwick Island** – so as to reduce the total number of beach nourishment contracts. Combining nourishment contracts.


Maryland
2
1
1
2
4
3
N
0 5 10 20
Miles
Direction of sediment flow

Maryland

PROJECT LEGEND

Key	Type	Project Name
		Geographic Area: Atlantic Coast
1	CSRM	Atlantic Coast MD Storm Protection (Ocean City)
1	NV	Ocean City Harbor and Inlet and Sinepuxent Bay
2	CSRM	Assateague Island Restoration - Short Term & LTSM
		Geographic Area: Mid Chesapeake Bay
2	NV	Fishing Creek
		Geographic Area: Lower Cheasapeake Bay
3	NV	Twitch Cove and Big Thorofare
4	NV	Rhodes Point to Tylerton

Coastal Storm Risk Management Project Reliability

- = GOOD
- = INTERMEDIATE
- = POOR
- = UNCONSTRUCTED
- = UNASSIGNED

Navigation Project Reliability

- = GOOD
- = MODERATE
- = POOR
- = FAILING
- = FAILED
- = UNASSIGNED

△ = INLET ONLY, NOT A FEDERAL NAVIGATION PROJECT

Atlantic Coast (before)

Atlantic Coast (after)

Maryland

Project Type	Project Name and Project Reliability	Phase	Extent of Resources at Risk: Structures (residential, commercial)	Environment and Habitat	Infrastructure (roads, water/sewer lines, boardwalks, navigation structures)	Critical Facilities (police, fire, schools, hospitals, nursing homes)	Evacuation and Re-entry Routes	Recreation	Consequence/ Economic Impact Rating
			Geographic Area: Atlantic Coast						
CSRM	Atlantic Coast MD Storm Protection (Ocean City)	R	•••	•	•••	••	•	•••	
NV	Ocean City Harbor and Inlet and Sinepuxent Bay	N							4
CSRM	Assateague Island Restoration - Short Term & LTSM	R	•	•••	•	•	•	••	
			Geographic Area: Mid Chesapeake Bay						
NV	Fishing Creek	N							4
			Geographic Area: Lower Cheasapeake Bay						
NV	Twitch Cove and Big Thorofare	N							4
NV	Rhodes Point to Tylerton	N							4

Project Type

CSRM = Coastal Storm Risk Management
NV = Navigation
ER = Ecosystem Restoration

Project Reliability

Indicated by background colors:

Green = Good (CSRM, NV)
Yellow = Intermediate (CSRM), Moderate (NV)
Orange = Poor (NV)
Pink = Failing (NV)
Red = Poor (CSRM), Failed (NV)
Purple = Unconstructed (CSRM)

Phase

S = Study
E = Pre-construction engineering and design
A = Awaiting initial construction funds
P = Partial construction funds received
C = Initial construction completed
U = Under Construction
R = Renourishment(s) initiated
N = Navigation maintenance

Extent of Resources at Risk

Coastal Storm Risk Management

••• = Significant
•• = Moderate
• = Minimal
x = None

Navigation

1 = Demonstrated highest economic impact or >10M Tons. Imminent life safety impact.
2 = Demonstrated high economic impact or 5-10M Tons. Probable life safety impact.
3 = Demonstrated moderate economic impact or 1-5M Tons. Possible life safety impact.
4 = Low economic impact or <1M Tons. No life safety impact.
5 = Negligible economics (Recreation Harbors, No commercial Activity). No life safety impact.

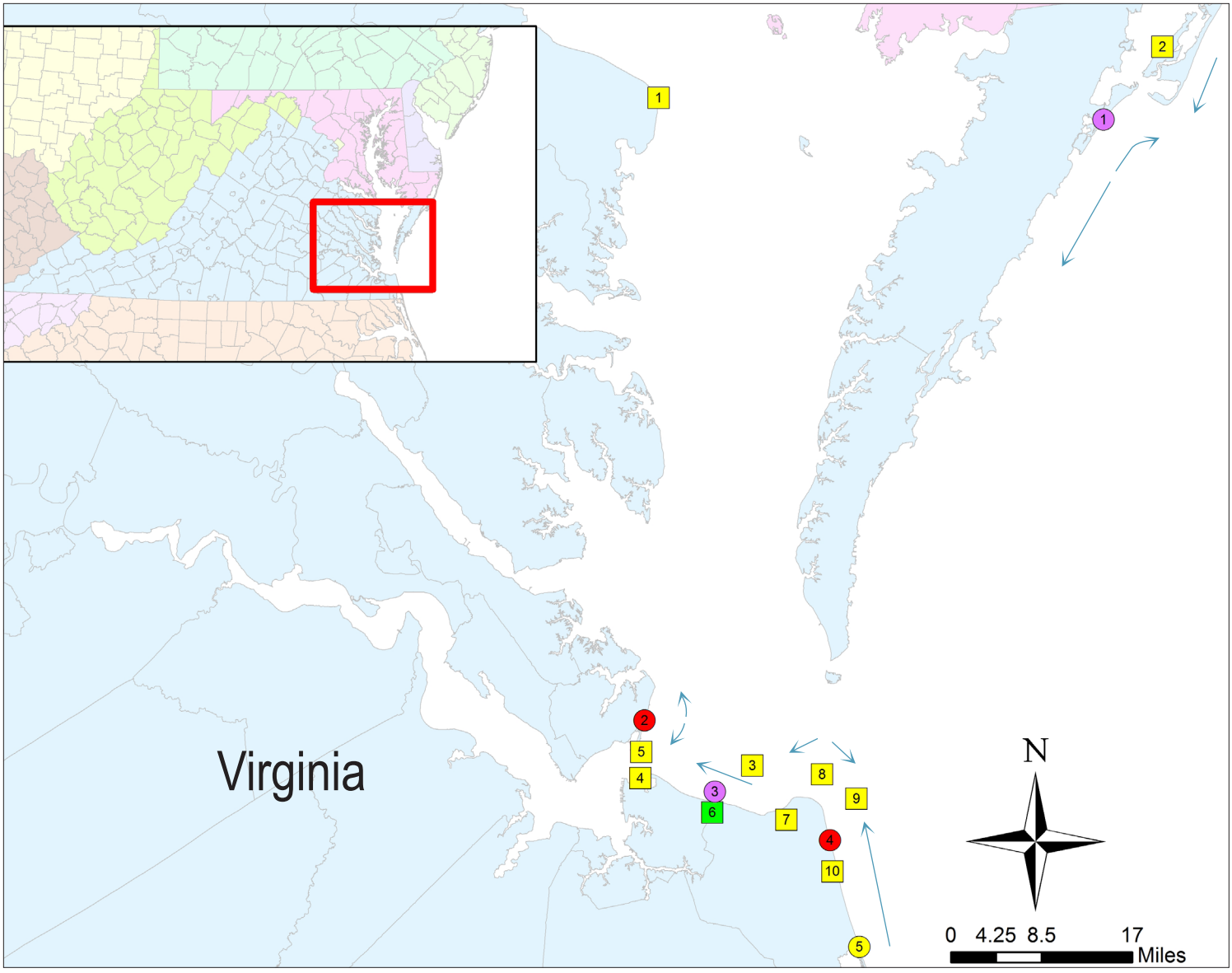
For complete definitions see page 7.

Maryland		Estimated Future Federal Costs					
		Total (FY 2013 - FY 2017)	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
Project Name and Project Reliability	Phase	Geographic Area: Atlantic Coast					
Atlantic Coast MD Storm Protection (Ocean City)	R	$7,767,000	$300,000	$6,567,000	$300,000	$300,000	$300,000
Ocean City Harbor and Inlet and Sinepuxent Bay	N	$600,000	$0	$500,000	$0	$100,000	$0
Assateague Island Restoration - Short Term & LTSM	R	$5,355,000	$1,071,000	$1,071,000	$1,071,000	$1,071,000	$1,071,000
Geographic Area: Mid Chesapeake Bay							
Fishing Creek	N	$1,130,000	$100,000	$1,000,000	$10,000	$10,000	$10,000
Geographic Area: Lower Cheasapeake Bay							
Twitch Cove and Big Thorofare	N	$2,500,000	$0	$0	$2,500,000	$0	$0
Rhodes Point to Tylerton	N	$0	$0	$0	$0	$0	$0
Totals		$17,352,000	$1,471,000	$9,138,000	$3,881,000	$1,481,000	$1,381,000

Note: Assateague future costs shown as Congress appropriates under Construction General (CG) which is cost shared at 53% Federal. Presidents Budget under O&M is 100% Federal, almost twice CG amounts shown.

Opportunities for Action

1. The Federal navigation channels in the Ocean City, MD area accumulate sands that are beneficially placed on **Ocean City or Assateague Island**; placement at these sites is cost-competitive with other potential disposal sites. Material dredged from **Ocean City Harbor** is disposed of at an upland site because of perception that it possesses unacceptable contaminants. However, chemical testing has found that the harbor material can probably be beneficially used for aquatic habitat restoration in the coastal bays, and the material may be used for this purpose at some time in the future.
2. In 2002-2003, sand from Isle of Wight Channel was used to restore salt marsh at Isle of Wight Wildlife Management Area. Restoring the salt marsh at Isle of Wight cost more than placing the sand at **Ocean City or Assateague Island**, and the difference was paid for by the Isle of Wight Project. Some sand from Isle of Wight Channel could in future be placed on Skimmer Isle if desired by local and state entities.
3. Where acceptable from environmental and cost perspectives, material dredged from shallow draft navigation projects in Chesapeake Bay is beneficially placed to create and restore habitat. In some cases, these projects have also protected infrastructure and cultural resources.


Virginia
N
0 4.25 8.5 17
Miles
Direction of sediment flow

Virginia

PROJECT LEGEND

Key	Type	Project Name
		Geographic Area: Middle Chesapeake Bay (Baltimore District)
1	NV	Little Wicomico River
		Geographic Area: Wallops Island to Assawoman (Norfolk District)
2	NV	Chincoteage Inlet
1	CSRM	Wallops Island
		Geographic Area: Factory Point to Old Point Comfort (Norfolk District)
2	CSRM	Chesapeake Bay Shoreline, Hampton
		Geographic Area: Willoughby Spit to North Carolina Border (Norfolk District)
3	NV	Thimble Shoals Channel
4	NV	Willoughby Channel
5	NV	Norfolk Harbor-Norfolk Harbor Channel
6	NV	Little Creek Inlet
3	CSRM	Willoughby Spit and Vicinity, Norfolk, VA
7	NV	Lynnhaven Inlet
8	NV	Cape Henry Channel
9	NV	Norfolk Harbor-Atlantic Channel
4	CSRM	Virginia Beach Hurricane Protection
10	NV	Rudee Inlet
5	CSRM	Sandbridge Beach

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Navigation Project Reliability

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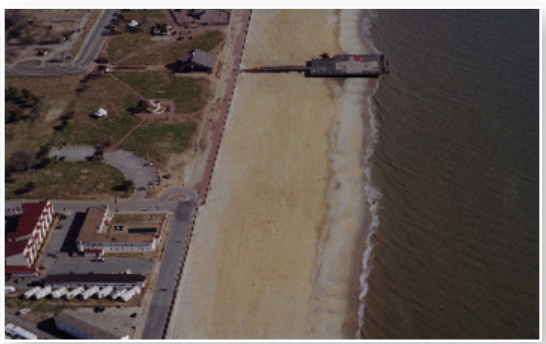
Chesapeake Bay Shoreline (before)



Chesapeake Bay Shoreline (after)

Virginia

Project Type	Project Name and Project Reliability	Phase	Extent of Resources at Risk: Structures (residential, commercial)	Environment and Habitat	Infrastructure (roads, water/sewer lines, boardwalks, navigation structures)	Critical Facilities (police, fire, schools, hospitals, nursing homes)	Evacuation and Re-entry Routes	Recreation	Consequence/ Economic Impact Rating
	Geographic Area: Middle Chesapeake Bay (Baltimore District)								
NV (2)	Little Wicomico River	N							2
	Geographic Area: Wallops Island to Assawoman (Norfolk District)								
NV	Chincoteage Inlet	N							3
CSRM	Wallops Island	P	•••	••	•••	•••	•	x	
	Geographic Area: Factory Point to Old Point Comfort (Norfolk District)								
CSRM (5)	Chesapeake Bay Shoreline, Hampton	R	••	x	••	x	••	•	
	Geographic Area: Willoughby Spit to North Carolina Border (Norfolk District)								
NV	Thimble Shoals Channel	N							1
NV	Willoughby Channel	N							4
NV	Norfolk Harbor - Norfolk Harbor Channel	N							1
NV	Little Creek Inlet	N							2
CSRM	Willoughby Spit and Vicinity, Norfolk, VA	E	•••	••	•••	x	••	•••	
NV	Lynnhaven Inlet	N							3
NV (3)	Cape Henry Channel	N							1
NV	Norfolk Harbor - Atlantic Channel	N							1
CSRM (4)	Virginia Beach Hurricane Protection	C	•••	••	••	x	••	••	
NV	Rudee Inlet	N							2
CSRM (6)	Sandbridge Beach	C	•••	•	•••	•	••	•••	

Project Type

CSRM = Coastal Storm Risk Management
NV = Navigation
ER = Ecosystem Restoration

Project Reliability

Indicated by background colors:

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Yellow = Intermediate (CSRM), Moderate (NV)
Orange = Poor (NV)
Pink = Failing (NV)
Red = Poor (CSRM), Failed (NV)
Purple = Unconstructed (CSRM)

Phase

S = Study
E = Pre-construction engineering and design
A = Awaiting initial construction funds
P = Partial construction funds received
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R = Renourishment(s) initiated
N = Navigation maintenance

Extent of Resources at Risk

Coastal Storm Risk Management

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• = Minimal
x = None

Navigation

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3 = Demonstrated moderate economic impact or 1-5M Tons. Possible life safety impact.
4 = Low economic impact or <1M Tons. No life safety impact.
5 = Negligible economics (Recreation Harbors, No commercial Activity). No life safety impact.

For complete definitions see page 7.

Footnotes

(1) Totals represents the total estimated future federal costs for the entire state of Virginia (Baltimore and Norfolk Districts combined)

(2) Little Wicomico River: The project includes channel and structure maintenance.

(3) Cape Henry Channel: Project was constructed and is maintained by NAO, but is part of the Baltimore Harbor Project at NAB.

(4) Virginia Beach Hurricane Protection: Federal funds in the amount of $8.9M were provided in FY11 and combined with $2M of carryover funds for the first renourishment scheduled for completion in FY12. The $8.9M shown here represents the funding that would be needed in FY15 for the next renourishment cycle, which is scheduled to occur every three years.

(5) Chesapeake Bay Shoreline, Hampton: FCCE renourishment for November 2009 Noreaster storm was completed in April 2011 (15,000 cy). First scheduled renourishment started in November 2011.

(6) Sandbridge Beach: Federal funds in the amount of $8.7M (if provided) would be used to renourish the beach in year 2 unless contributed funds are allowed by the passage of legislative language which would allow the sponsor to provide 100% of the funding as contributed funds.

Virginia		Estimated Future Federal Costs					
		Total (FY 2013 - FY 2017)	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
Project Name and Project Reliability	Phase	Geographic Area: Middle Chesapeake Bay (Baltimore District)					
Little Wicomico River	N	$0	$0	$0	$0	$0	$0
Totals (Baltimore District)		$0	$0	$0	$0	$0	$0
		Geographic Area: Wallops Island to Assawoman (Norfolk District)					
Chincoteage Inlet	N	$7,076,000	$1,333,000	$1,373,000	$1,414,000	$1,456,000	$1,500,000
Wallops Island	P	$42,500,000	$20,000,000	$19,500,000	$0	$0	$3,000,000
		Geographic Area: Factory Point to Old Point Comfort (Norfolk District)					
Chesapeake Bay Shoreline, Hampton	R	$0	$0	$0	$0	$0	$0
		Geographic Area: Willoughby Spit to North Carolina Border (Norfolk District)					
Thimble Shoals Channel	N	$7,150,000	$2,500,000	$200,000	$200,000	$4,000,000	$250,000
Willoughby Channel	N	$0	$0	$0	$0	$0	$0
Norfolk Harbor - Norfolk Harbor Channel	N	$26,650,000	$5,000,000	$5,150,000	$5,300,000	$5,500,000	$5,700,000
Little Creek Inlet	N	$0	$0	$0	$0	$0	$0
Willoughby Spit and Vicinity, Norfolk, VA	E	$20,159,000	$159,000	$0	$10,000,000	$5,000,000	$5,000,000
Lynnhaven Inlet	N	$6,690,000	$520,000	$2,520,000	$550,000	$2,550,000	$550,000
Cape Henry Channel	N	$15,250,000	$10,000,000	$250,000	$250,000	$250,000	$4,500,000
Norfolk Harbor - Atlantic Channel	N	$6,100,000	$2,500,000	$200,000	$200,000	$200,000	$3,000,000
Virginia Beach Hurricane Protection	C	$9,300,000	$100,000	$100,000	$8,900,000	$100,000	$100,000
Rudee Inlet	N	$9,500,000	$500,000	$3,750,000	$750,000	$3,750,000	$750,000
Sandbridge Beach	C	$9,000,000	$100,000	$8,700,000	$100,000	$0	$100,000
Totals (Norfolk District)		$159,375,000	$42,712,000	$41,743,000	$27,664,000	$22,806,000	$24,450,000
Totals [1]		$159,375,000	$42,712,000	$41,743,000	$27,664,000	$22,806,000	$24,450,000

Opportunities for Action

1. Sand from the **Chincoteague Inlet** is currently permitted for and over 90,000 cubic yards and was placed on the **Wallops Island** project site in 2002. However, the dredged sediment from the **Chincoteague Inlet** was mostly fines which did not remain on the beach after placement long because the material was rapidly carried from the site and dispersed. The after action decision on the effectiveness of the 2002 action was minimal and any future such actions would not be worth the cost.

2. Sand material from the **Little Creek Inlet**, currently maintained by the Navy, is deposited on the beach at Little Creek Amphibious Base. Jetties at this inlet provide substrate for benthic habitat, but also block the transport of material to some of the surrounding beaches. In the past, the Navy has occasionally placed dredged material on both sides of the inlet in an attempt to offset this problem. Therefore, there continue to be opportunities for some material from the inlet is to be placed 1 mile east and 1 mile west of the jetties to offset the impact of these jetties.

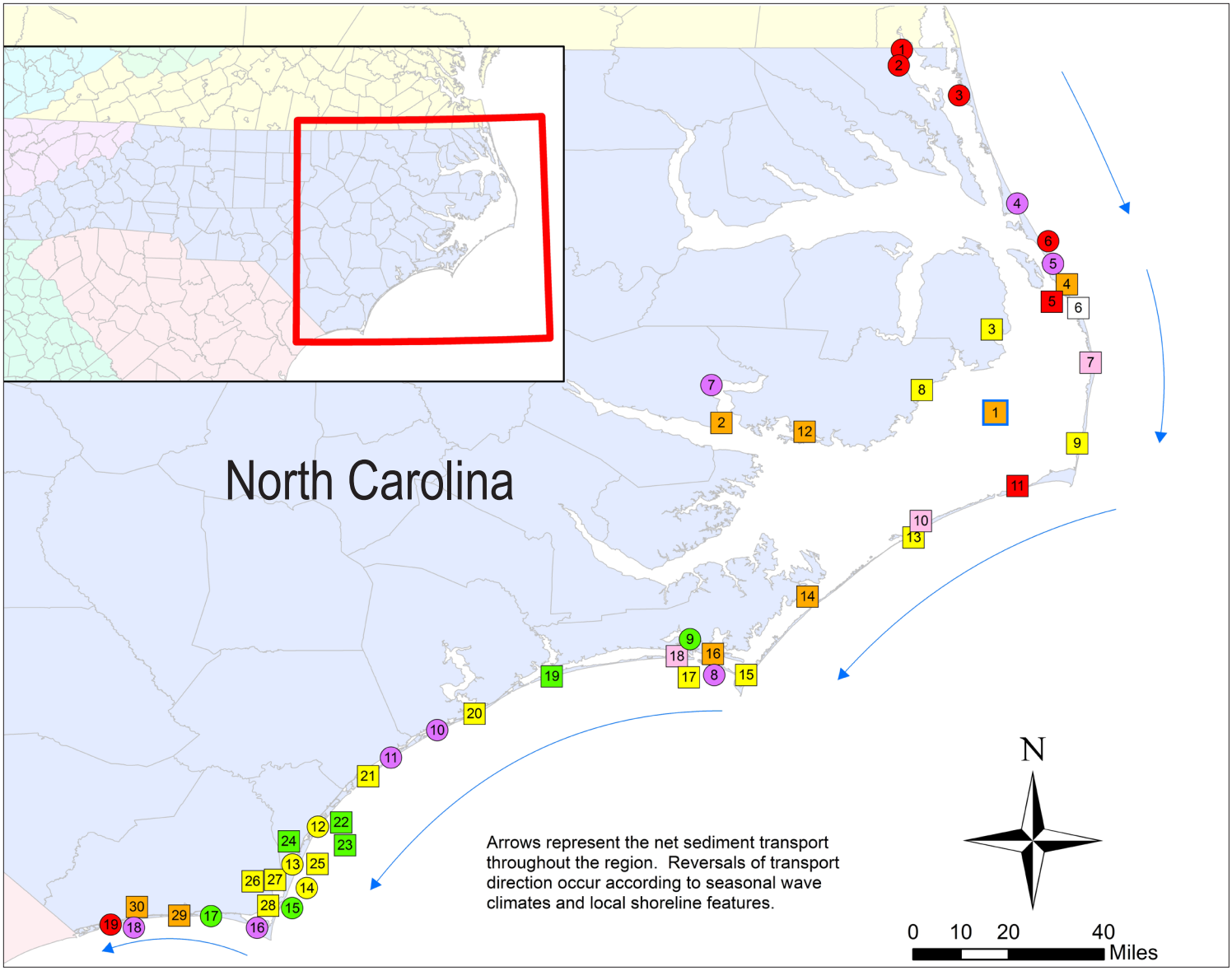
3. Maintenance material from the **Thimble Shoals Channel** has previously been placed on East Ocean View (part of the current Willoughby Spit and Vicinity Study area) as well as beaches on the Chesapeake Bay in the City of Virginia Beach. When dredging of this channel ultimately reaches the authorized depth of 55 feet, there will be several million cubic yards of material available for use on various beaches in the vicinity of the channel. A beneficial use evaluation will have to be conducted to determine where to place this sand.

4. Material from **Lynnhaven Inlet** is placed on the beach at the Ocean Park site in the City of Virginia Beach every three years. A secondary purpose of the maintenance of the **Lynnhaven Inlet** is to increase tidal flow for successful propagation of shellfish. In addition, a site adjacent to the **Lynnhaven Inlet**, previously used for disposal of material from this inlet, has developed into a natural area. While this was not intended as an ecosystem restoration project, this area is now used by numerous visitors for recreation activities such as bird watching.

5. The **Cape Henry Channel**, currently maintained by Norfolk District for Baltimore District, provides material for coastal storm risk management to a portion of beach on the Chesapeake Bay for the City of Virginia Beach. Some dredge material from the **Cape Henry Channel** and other lower Bay areas in Virginia waters has been used beneficially. Dredged material from the lower Bay areas tends to be sandier. Norfolk District has used these materials on some CSDR projects near the mouth of the Bay.

6. Beach quality sand removed from the Atlantic Ocean Channel will continue to be placed on the Virginia Beach Hurricane Protection Project in Virginia Beach. This channel is authorized to 55 feet, and when dredging to this depth is ultimately realized, this channel will have approximately 80 million cubic yards of sand available to be placed on the Virginia Beach Hurricane Protection Project. The **Sandbridge Beach** project has its own borrow area 3-5 miles offshore.

7. Approximately 200,000 cubic yards of material, from **Rudee Inlet**, is the net drift of material deposited into a weir sand trap system which is dredged and pumped onto the portion of the Virginia Beach Hurricane Protection project just north of the inlet. Jetties at this inlet provide substrate for benthic habitat and fish, providing recreational fishing opportunities in the area.


North Carolina
Arrows represent the net sediment transport throughout the region. Reversals of transport direction occur according to seasonal wave climates and local shoreline features.
N
0 10 20 40
Miles
Direction of sediment flow

North Carolina

PROJECT LEGEND

Key	Type	Project Name
		Geographic Area: NC Statewide
1	NV	AIWW - Wilmington District, NC
		Geographic Area: NC Region 4c – Dare/Currituck County Line to NC/VA Border
1	CSRM	Currituck Sound, NC
2	CSRM	CAP - Section 206 (Northern Currituck Sound SAV and Marsh Restoration, NC)
3	CSRM	CAP - Section 206 (Monkey Island, NC)
2	NV	AIWW - Wrights Creek, NC
		Geographic Area: NC Region 4b – North of Rodanthe to Dare/Currituck County Line
4	CSRM	Dare County Beaches, NC (Bodie Island Portion)
3	NV	Coastal Harbors, NC (Stumpy Point Bay)
4	NV	CAP - Section 204 (Manteo, Old House Channel, NC)
5	NV	Manteo (Shallowbag) Bay, NC (O&M)
6	NV	Manteo (Shallowbag) Bay, NC (Construction)
		Geographic Area: NC Region 4a – West of Buxton to North of Rodanthe
5	CSRM	Dare County Beaches, NC (Hatteras & Ocracoke)
7	NV	AIWW - Channel From Pamlico Sound To Rodanthe, NC
8	NV	AIWW - Far Creek, NC
9	NV	Coastal Harbors, NC- (Shallow Draft - Avon Harbor)
10	NV	Coastal Harbors, NC (Shallow Draft - Silver Lake Harbor)
		Geographic Area: NC Region 3b – South of Portsmouth to West of Buxton
6	CSRM	Tar River and Pamlico Sound, NC
11	NV	Coastal Harbors, NC (Shallow Draft - Rollinson Channel)
7	CSRM	CAP Section 1135 - (Belhaven Harbor Environmental Improvements, Belhaven, NC)
12	NV	AIWW - Waterway Connecting Swanquarter Bay With Deep Bay, NC
13	NV	Coastal Inlets, NC (Ocracoke Inlet)
		Geographic Area: NC Region 3a – North of Lighthouse to South of Portsmouth
14	NV	Coastal Harbors, NC - (Shallow Draft - Atlantic Harbor)
15	NV	AIWW - Channel from Back Sound to Lookout Bight, NC
16	NV	Coastal Harbors, NC (Shallow Draft - Waterway Connecting Pamlico Sound & Beaufort Harbor)

Coastal Storm Risk Management Project Reliability

- = GOOD
- = INTERMEDIATE
- = POOR
- = UNCONSTRUCTED
- = UNASSIGNED

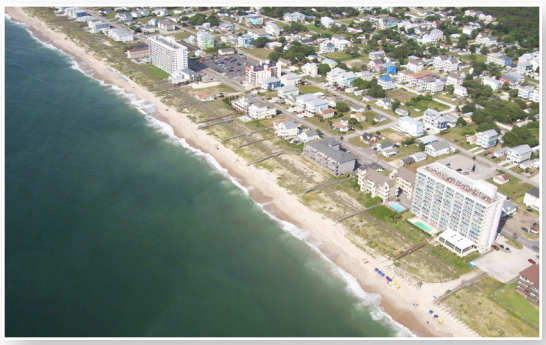
Navigation Project Reliability

- = GOOD
- = MODERATE
- = POOR
- = FAILING
- = FAILED
- = UNASSIGNED

△ = INLET ONLY, NOT A FEDERAL NAVIGATION PROJECT

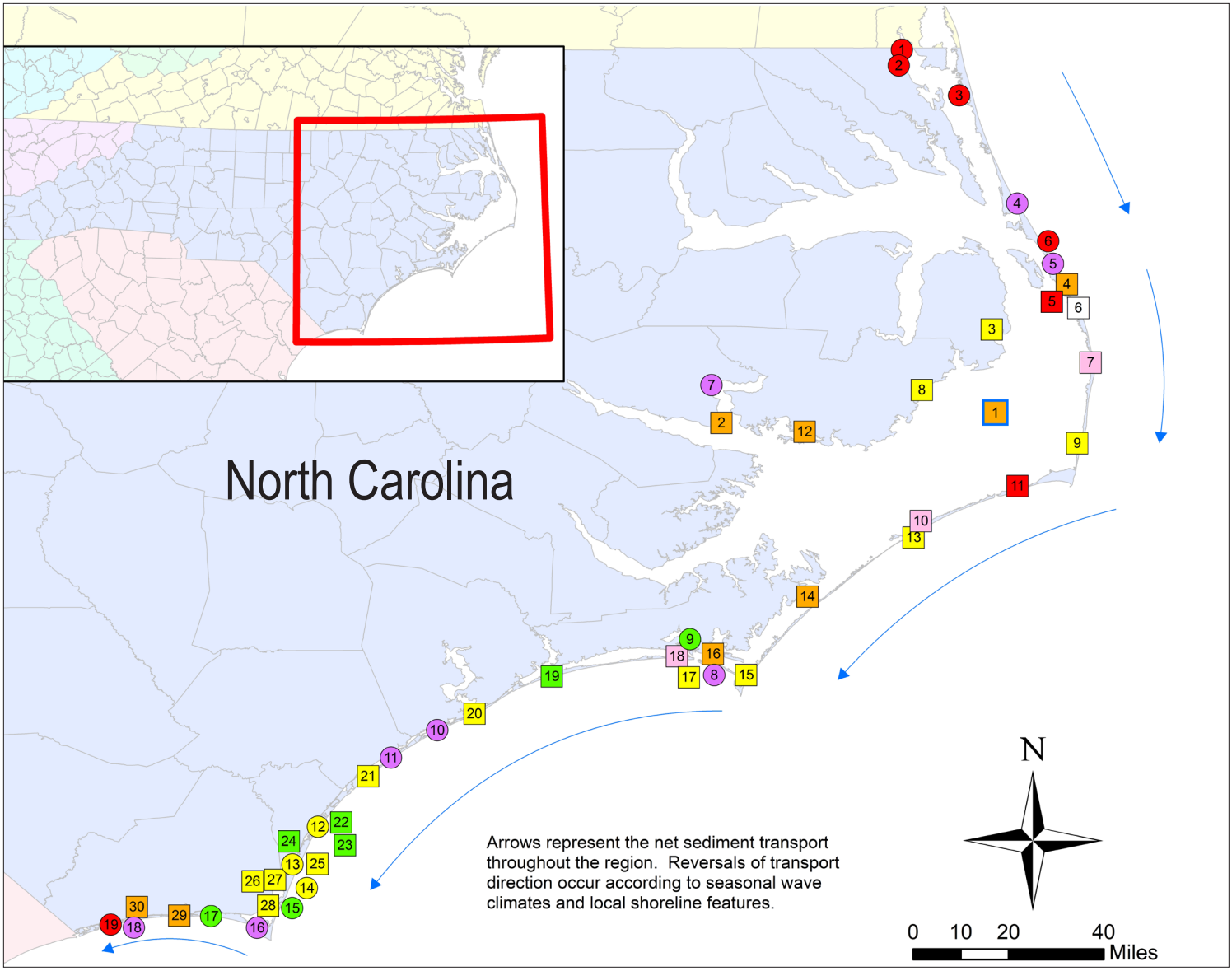
□ ○ = STATEWIDE PROJECTS OUTLINED

□ ○ = REGIONAL PROJECTS OUTLINED



Kure Beach, NC

Manteo Bay, NC (dredging of navigation channel)


North Carolina
Arrows represent the net sediment transport throughout the region. Reversals of transport direction occur according to seasonal wave climates and local shoreline features.
N
0 10 20 40
Miles
Direction of sediment flow

North Carolina Continued

PROJECT LEGEND

Key	Type	Project Name
Geographic Area: NC Region 2c – West of Bear Inlet to North of Lighthouse		
8	CSRM	Bogue Banks, NC
9	CSRM	Fort Macon
17	NV	Morehead City Harbor, NC
18	NV	AIWW - Atlantic Beach Channels, NC
19	NV	Coastal Inlets, NC (Bogue Inlet & Connecting Channel)
Geographic Area: NC Region 2b – North of Rich Inlet to West of Bear Inlet		
20	NV	Coastal Inlets, NC (New River Inlet &Channels to Jacksonville)
10	CSRM	Surf City and North Topsail Beach, NC
11	CSRM	West Onslow Beach & New River Inlet - Topsail Beach, NC
21	NV	Coastal Inlets, NC (New Topsail Inlet & Connecting Channels)
Geographic Area: NC Region 2a – Brunswick/New Hanover County Line to North of Rich Inlet		
22	NV	Coastal Inlets, NC (Masonboro Inlet)
23	NV	Masonboro Inlet, NC (Shallow Draft Navigation)
12	CSRM	Wrightsville Beach
24	NV	AIWW - Snow´s Cut, NC
13	CSRM	Carolina Beach and Vicinity, Carolina Beach Portion
25	NV	Coastal Inlets, NC (Carolina Beach Inlet)
14	CSRM	Carolina Beach and Vicinity, Area South (Kure Beach)
15	CSRM	Fort Fisher
Geographic Area: NC Region 1 – SC/NC Border to Brunswick/New Hanover County Line		
26	NV	Wilmington Harbor, NC (96 Act - CG)
27	NV	Wilmington Harbor, NC (O&M)
28	NV	Wilmington Harbor Improvements
16	CSRM	Bald Head Island, NC
17	CSRM	CAP - Section 1135, NC (Sea Turtle Habitat Project, Oak Island, NC)
29	NV	Coastal Inlets, NC (Lockwoods Folly River Inlet & River)
30	NV	Shallotte River, NC
18	CSRM	Brunswick County Beaches, NC (Oak Island, Caswell Beach & Holden Beach)
19	CSRM	Brunswick County Beaches, NC (Ocean Isle Beach)

Coastal Storm Risk Management Project Reliability

- = GOOD
- = INTERMEDIATE
- = POOR
- = UNCONSTRUCTED
- = UNASSIGNED

Navigation Project Reliability

- = GOOD
- = MODERATE
- = POOR
- = FAILING
- = FAILED
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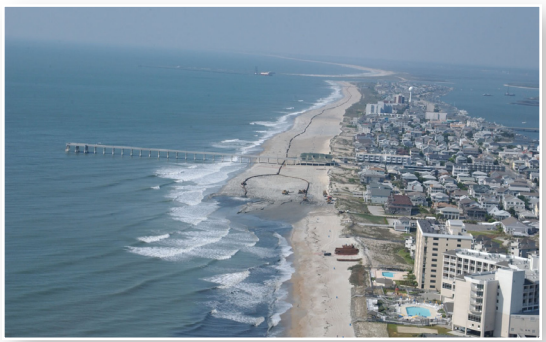
△ = INLET ONLY, NOT A FEDERAL NAVIGATION PROJECT

□ ○ = STATEWIDE PROJECTS OUTLINED

□ ○ = REGIONAL PROJECTS OUTLINED

Topsail Beach, NC



Wrightsville Beach, NC

North Carolina

Project Type	Project Name and Project Reliability	Phase	Extent of Resources at Risk: Structures (residential, commercial)	Environment and Habitat	Infrastructure (roads, water/sewer lines, boardwalks, navigation structures)	Critical Facilities (police, fire, schools, hospitals, nursing homes)	Evacuation and Re-entry Routes	Recreation	Consequence/ Economic Impact Rating
NV	AIWW - Wilmington District, NC	N							3
Geographic Area: NC Region 4c – Dare/Currituck County Line to NC/VA Border (Wilmington District)									
CSRM	Currituck Sound, NC		x	x	x	x	x	x	
CSRM	CAP - Section 206 (Northern Currituck Sound SAV and Marsh Restoration, NC)		x	x	x	x	x	x	
CSRM	CAP - Section 206 (Monkey Island, NC)		x	x	x	x	x	x	
NV	AIWW - Wrights Creek, NC	N							3
Geographic Area: NC Region 4b – North of Rodanthe to Dare/Currituck County Line (Wilmington District)									
CSRM	Dare County Beaches, NC (Bodie Island Portion)	E	• • •	• • •	• • •	• • •	• • •	• • •	
NV	Coastal Harbors, NC (Stumpy Point Bay)	N							3
NV	CAP - Section 204 (Manteo, Old House Channel, NC)	N							4
NV	Manteo (Shallowbag) Bay, NC (O&M)	N							2
NV	Manteo (Shallowbag) Bay, NC (Construction)	N							5
Geographic Area: NC Region 4a – West of Buxton to North of Rodanthe (Wilmington District)									
CSRM	Dare County Beaches, NC (Hatteras & Ocracoke)	S	x	x	x	x	x	x	
NV	AIWW - Channel From Pamlico Sound To Rodanthe, NC	N							2
NV	AIWW - Far Creek, NC	N							3
NV	Coastal Harbors, NC (Shallow Draft - Avon Harbor)	N							4
NV	Coastal Harbors, NC (Shallow Draft - Silver Lake Harbor)	N							2
Geographic Area: NC Region 3b – South of Portsmouth to West of Buxton (Wilmington District)									
CSRM	Tar River and Pamlico Sound, NC	S	x	x	x	x	x	x	
NV	Coastal Harbors, NC (Shallow Draft - Rollinson Channel)	N							2
CSRM	CAP Section 1135 - (Belhaven Harbor Environmental Improvements, Belhaven, NC)		x	x	x	x	x	x	
NV	AIWW - Waterway Connecting Swanquarter Bay With Deep Bay, NC	N							4
NV	Coastal Inlets, NC (Ocracoke Inlet)	N							2
Geographic Area: NC Region 3a – N. of Lighthouse to S. of Portsmouth (Wilmington District)									
NV	Coastal Harbors, NC (Shallow Draft - Atlantic Harbor)	N							3
NV	AIWW - Channel from Back Sound to Lookout Bight, NC	N							4
NV	Coastal Harbors, NC (Shallow Draft - Waterway Connecting Pamlico Sound & Beaufort Harbor)	N							3

Footnotes

(1) Wilmington Harbor (O&M): Maintenance dredging results in onshore placement of beach quality material at Bald Head Island, Caswell Beach and the Town of Oak Island when funding allows. Material quantities are approximately 1 million cy dredged and placed every two years.

North Carolina

Project Name and Project Reliability	Phase	Estimated Future Federal Costs					
		Total (FY 2013 - FY 2017)	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
Geographic Area: NC Statewide (Wilmington District)							
AIWW - Wilmington District, NC	N	$49,000,000	$9,800,000	$9,800,000	$9,800,000	$9,800,000	$9,800,000
Geographic Area: NC Region 4c – Dare/Currituck County Line to NC/VA Border (Wilmington District)							
Currituck Sound, NC		$858,000	$358,000	$300,000	$200,000	$0	$0
CAP - Section 206 (Northern Currituck Sound SAV and Marsh Restoration, NC)		$0	$0	$0	$0	$0	$0
CAP - Section 206 (Monkey Island, NC)		$0	$0	$0	$0	$0	$0
AIWW - Wrights Creek, NC	N	$0	$0	$0	$0	$0	$0
Geographic Area: NC Region 4b – North of Rodanthe to Dare/Currituck County Line (Wilmington District)							
Dare County Beaches, NC (Bodie Island Portion)	E	$2,160,000	$60,000	$1,200,000	$300,000	$300,000	$300,000
Coastal Harbors, NC (Stumpy Point Bay)	N	$3,700,000	$500,000	$500,000	$500,000	$500,000	$1,700,000
CAP - Section 204 (Manteo, Old House Channel, NC)	N	$4,700,000	$4,400,000	$250,000	$25,000	$25,000	$0
Manteo (Shallowbag) Bay, NC (O&M)	N	$99,400,000	$19,700,000	$19,700,000	$20,000,000	$20,000,000	$20,000,000
Manteo (Shallowbag) Bay, NC (Construction)	N	$7,100,000	$600,000	$6,500,000	$0	$0	$0
Geographic Area: NC Region 4a – West of Buxton to North of Rodanthe (Wilmington District)							
Dare County Beaches, NC (Hatteras & Ocracoke)	S	$0	$0	$0	$0	$0	$0
AIWW - Channel From Pamlico Sound To Rodanthe, NC	N	$5,000,000	$1,000,000	$1,000,000	$1,000,000	$1,000,000	$1,000,000
AIWW - Far Creek, NC	N	$2,250,000	$0	$0	$750,000	$750,000	$750,000
Coastal Harbors, NC (Shallow Draft - Avon Harbor)	N	$9,150,000	$1,800,000	$1,800,000	$1,850,000	$1,850,000	$1,850,000
Coastal Harbors, NC (Shallow Draft - Silver Lake Harbor)	N	$7,450,000	$1,500,000	$1,450,000	$1,500,000	$1,500,000	$1,500,000
Geographic Area: NC Region 3b – South of Portsmouth to West of Buxton (Wilmington District)							
Tar River and Pamlico Sound, NC	S	$0	$0	$0	$0	$0	$0
Coastal Harbors, NC (Shallow Draft - Rollinson Channel)	N	$5,000,000	$1,000,000	$1,000,000	$1,000,000	$1,000,000	$1,000,000
CAP Section 1135 - (Belhaven Harbor Environmental Improvements, Belhaven, NC)		$2,050,000	$2,000,000	$50,000	$0	$0	$0
AIWW - Waterway Connecting Swanquarter Bay With Deep Bay, NC	N	$0	$0	$0	$0	$0	$0
Coastal Inlets, NC (Ocracoke Inlet)	N	$0	$0	$0	$0	$0	$0
Geographic Area: NC Region 3a – N. of Lighthouse to S. of Portsmouth (Wilmington District)							
Coastal Harbors, NC (Shallow Draft - Atlantic Harbor)	N	$0	$0	$0	$0	$0	$0
AIWW - Channel from Back Sound to Lookout Bight, NC	N	$5,500,000	$1,100,000	$1,100,000	$1,100,000	$1,100,000	$1,100,000
Coastal Harbors, NC (Shallow Draft - Waterway Connecting Pamlico Sound & Beaufort Harbor)	N	$21,000,000	$4,000,000	$4,000,000	$4,000,000	$5,000,000	$4,000,000

North Carolina

Project Type	Project Name and Project Reliability	Phase	Extent of Resources at Risk (Cont.)						
			Structures (residential, commercial)	Environment and Habitat	Infrastructure (roads, water/sewer lines, boardwalks, navigation structures)	Critical Facilities (police, fire, schools, hospitals, nursing homes)	Evacuation and Re-entry Routes	Recreation	Consequence/ Economic Impact Rating
CSRM	Bogue Banks, NC	S	x	x	x	x	x	x	
CSRM	Fort Macon	C	•	•	•	•	•	•	
NV	Morehead City Harbor, NC	N							2
NV	AIWW - Atlantic Beach Channels, NC	N							4
NV	Coastal Inlets, NC (Bogue Inlet & Connecting Channel)	N							2
	Geographic Area: NC Region 2b – North of Rich Inlet to West of Bear Inlet (Wilmington District)								
NV	Coastal Inlets, NC (New River Inlet & Channels to Jacksonville)	N							2
CSRM	Surf City and North Topsail Beach, NC	A	x	x	x	x	x	•	
CSRM	West Onslow Beach & New River Inlet - Topsail Beach, NC	A	x	x	x	x	x	x	
NV	Coastal Inlets, NC (New Topsail Inlet & Connecting Channels)	N							2
	Geogrpahic Area: NC Region 2a – Brunswick/New Hanover County Line to North of Rich Inlet (Wilmington District)								
NV	Coastal Inlets, NC (Masonboro Inlet)	N							3
NV	Masonboro Inlet, NC (Shallow Draft Navigation)	N							3
CSRM	Wrightsville Beach	R	•	•	•	•	•	•	
NV	AIWW - Snow´s Cut, NC	N							3
CSRM	Carolina Beach & Vicinity, Carolina Beach Portion	R	•	•	•	•	•	•	
NV	Coastal Inlets, NC (Carolina Beach Inlet)	N							2
CSRM	Carolina Beach & Vicinity, Area South (Kure Beach)	R	•	•	•	•	•	•	
CSRM	Fort Fisher	C	•	x	•	•	x	•	
	Geographic Area: NC Region 1 – SC/NC Border to Brunswick/New Hanover County Line (Wilmington District)								
NV	Wilmington Harbor, NC (96 Act - CG)	N							2
NV	Wilmington Harbor, NC (O&M)	N							2
NV	Wilmington Harbor Improvements	N							2
CSRM	Bald Head Island, NC		x	x	x	x	x	x	
CSRM	CAP - Section 1135, NC (Sea Turtle Habitat Project, Oak Island, NC)	F	•	• • •	•	•	•	•	
NV	Coastal Inlets, NC (Lockwoods Folly River Inlet & River)	N							2
NV	Shallotte River, NC	N							3
CSRM	Brunswick County Beaches, NC (Oak Island, Caswell Beach & Holden Beach)	A	x	x	x	x	x	x	
CSRM	Brunswick County Beaches, NC (Ocean Isle Beach)	R	• •	• • •	• •	• •	• •	• • •	

Project Type

CSRM = Coastal Storm Risk Management
NV = Navigation
ER = Ecosystem Restoration

Project Reliability

Indicated by background colors:

Green = Good (CSRM, NV)
Yellow = Intermediate (CSRM), Moderate (NV)
Orange = Poor (NV)
Pink = Failing (NV)
Red = Poor (CSRM), Failed (NV)
Purple = Unconstructed (CSRM)

Phase

S = Study
E = Pre-construction engineering and design
A = Awaiting initial construction funds
P = Partial construction funds received
C = Initial construction completed
U = Under Construction
R = Renourishment(s) initiated
N = Navigation maintenance

Extent of Resources at Risk

Coastal Storm Risk Management

• • • = Significant
• • = Moderate
• = Minimal
x = None

Navigation

1 = Demonstrated highest economic impact or >10M Tons. Imminent life safety impact.
2 = Demonstrated high economic impact or 5-10M Tons. Probable life safety impact.
3 = Demonstrated moderate economic impact or 1-5M Tons. Possible life safety impact.
4 = Low economic impact or <1M Tons. No life safety impact.
5 = Negligible economics (Recreation Harbors, No commercial Activity). No life safety impact.

For complete definitions see page 7.

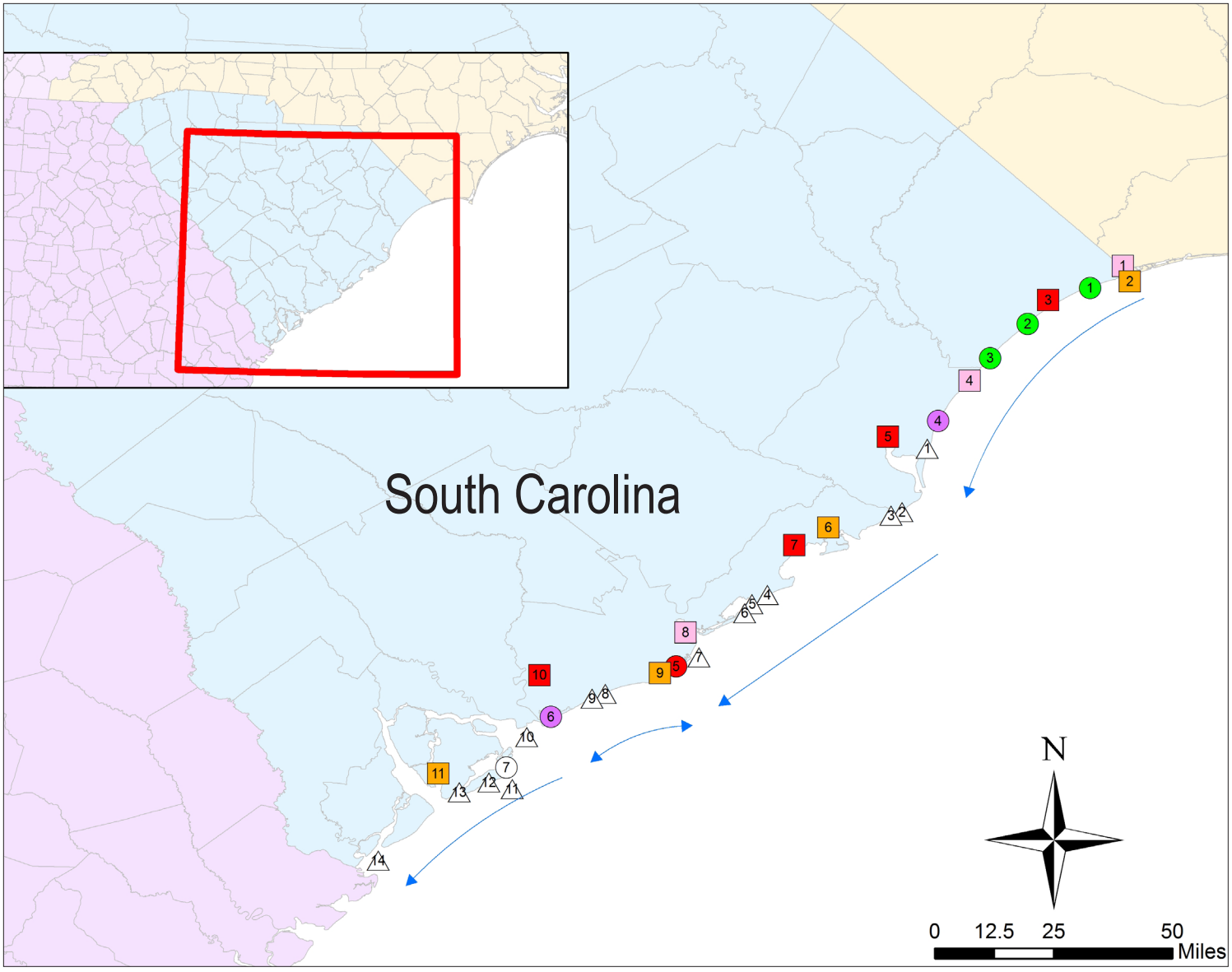
North Carolina

Estimated Future Federal Costs (Cont.)

Project Name and Project Reliability	Phase	Total (FY 2013 - FY 2013)	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
Geographic Area: NC Region 2c – W. of Bear Inlet to N. of Lighthouse (Wilmington District)							
Bogue Banks, NC	S	$1,845,000	$445,000	$700,000	$600,000	$100,000	$0
Fort Macon	C	$0	$0	$0	$0	$0	$0
Morehead City Harbor, NC	N	$34,900,000	$6,900,000	$7,000,000	$7,000,000	$7,000,000	$7,000,000
AIWW - Atlantic Beach Channels, NC	N	$0	$0	$0	$0	$0	$0
Coastal Inlets, NC (Bogue Inlet & Connecting Channel)	N	$5,250,000	$0	$750,000	$1,500,000	$1,500,000	$1,500,000
Geographic Area: NC Region 2b – North of Rich Inlet to West of Bear Inlet (Wilmington District)							
Coastal Inlets, NC (New River Inlet & Channels to Jacksonville)	N	$12,250,000	$2,450,000	$2,450,000	$2,450,000	$2,450,000	$2,450,000
Surf City and North Topsail Beach, NC	A	$450,000	$225,000	$225,000	$0	$0	$0
West Onslow Beach & New River Inlet - Topsail Beach, NC	A	$400,000	$200,000	$50,000	$50,000	$50,000	$50,000
Coastal Inlets, NC (New Topsail Inlet & Connecting Channels)	N	$7,000,000	$1,400,000	$1,400,000	$1,400,000	$1,400,000	$1,400,000
Geogrpahic Area: NC Region 2a – Brunswick/New Hanover County Line to North of Rich Inlet (Wilmington District)							
Coastal Inlets, NC (Masonboro Inlet)	N	$0	$0	$0	$0	$0	$0
Masonboro Inlet, NC (Shallow Draft Navigation)	N	$18,500,000	$6,850,000	$4,250,000	$300,000	$7,000,000	$100,000
Wrightsville Beach	R	$5,700,000	$300,000	$5,100,000	$0	$0	$300,000
AIWW - Snow´s Cut, NC	N	$1,600,000	$100,000	$500,000	$500,000	$500,000	$0
Carolina Beach & Vicinity, Carolina Beach Portion	R	$4,990,000	$4,940,000	$50,000	$0	$0	$0
Coastal Inlets, NC (Carolina Beach Inlet)	N	$4,600,000	$900,000	$900,000	$900,000	$900,000	$1,000,000
Carolina Beach & Vicinity, Area South (Kure Beach)	R	$17,100,000	$8,400,000	$0	$300,000	$8,400,000	$0
Fort Fisher	C	$0	$0	$0	$0	$0	$0
Geographic Area: NC Region 1 – SC/NC Border to Brunswick/New Hanover County Line (Wilmington District)							
Wilmington Harbor, NC (96 Act - CG)	N	$56,800,000	$28,000,000	$7,200,000	$7,200,000	$7,200,000	$7,200,000
Wilmington Harbor, NC (O&M)	N	$148,110,000	$29,370,000	$29,370,000	$30,000,000	$29,370,000	$30,000,000
Wilmington Harbor Improvements	N	$2,900,000	$500,000	$600,000	$600,000	$600,000	$600,000
Bald Head Island, NC		$1,750,000	$0	$100,000	$600,000	$300,000	$750,000
CAP - Section 1135, NC (Sea Turtle Habitat Project, Oak Island, NC)	F	$0	$0	$0	$0	$0	$0
Coastal Inlets, NC (Lockwoods Folly River Inlet & River)	N	$34,250,000	$6,850,000	$6,850,000	$6,850,000	$6,850,000	$6,850,000
Shallotte River, NC	N	$1,250,000	$250,000	$250,000	$250,000	$250,000	$250,000
Brunswick County Beaches, NC (Oak Island, Caswell Beach & Holden Beach)	A	$5,700,000	$1,100,000	$300,000	$4,000,000	$0	$300,000
Brunswick County Beaches, NC (Ocean Isle Beach)	R	$9,000,000	$4,400,000	$0	$200,000	$4,400,000	$0
Totals		$598,663,000	$151,398,000	$116,695,000	$106,725,000	$121,095,000	$102,750,000

Opportunities for Action

1. Wilmington District will continue the current practice of keeping the beach quality material in the littoral system in all of the District's navigation dredging actions. The District will also continue to combine contract actions on the three current authorized coastal storm risk management projects at **Carolina Beach, Kure Beach** and **Ocean Isle Beach** as they are all on the same 3-year nourishment cycle and will add in **Wrightsville Beach/Masonboro Island** when that 4-year nourishment cycle falls at the same time as such was the case in FY 2010.


South Carolina
N
0
12.5
25
50
Miles
Direction of sediment flow

South Carolina

PROJECT LEGEND

Key	Type	Project Name
Geographic Area: Little River Inlet to Georgetown Harbor		
1	NV	Calabash Creek
2	NV	Little River Inlet
1	CSRM	Myrtle Beach Reach 1 - North Myrtle Beach
3	NV	AIWW - Little River to Winyah Bay
2	CSRM	Myrtle Beach Reach 2 - Myrtle Beach
3	CSRM	Myrtle Beach Reach 3 - Garden City/Surfside
4	NV	Murrells Inlet
4	CSRM	Pawleys Island
1	NV	North Inlet
5	NV	Georgetown Harbor
Geographic Area: Georgetown Harbor to Charleston Harbor		
2	NV	North Santee River Inlet
3	NV	South Santee River Inlet
6	NV	Town Creek Inlet
7	NV	AIWW - Winyah Bay to Charleston
4	NV	Price Inlet
5	NV	Capers Inlet
6	NV	Dewees Inlet
8	NV	Charleston Harbor
Geographic Area: Charleston Harbor to Calibogue Sound		
7	NV	Lighthouse Inlet
5	CSRM	Folly Beach
9	NV	Stono Inlet - Folly River
8	NV	Captain Sams Inlet
9	NV	North Edisto River Inlet
10	NV	AIWW - Charleston to Port Royal Sound
6	CSRM	Edisto Island
10	NV	St Helena Sound
7	CSRM	Hunting Island
11	NV	Fripp Inlet
12	NV	Skull Inlet
13	NV	Trenchards Inlet
11	NV	Port Royal Sound
14	NV	Calibogue Sound

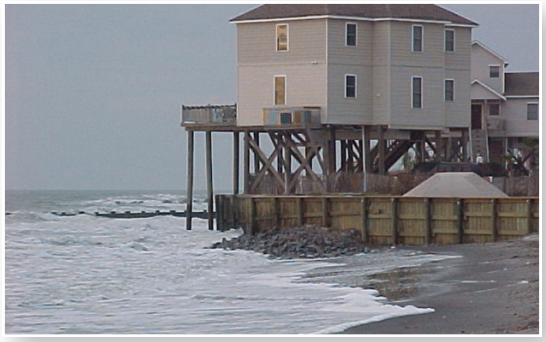
Coastal Storm Risk Management Project Reliability

- = GOOD
- = INTERMEDIATE
- = POOR
- = UNCONSTRUCTED
- = UNASSIGNED

Navigation Project Reliability

- = GOOD
- = MODERATE
- = POOR
- = FAILING
- = FAILED
- = UNASSIGNED

△ = INLET ONLY, NOT A FEDERAL NAVIGATION PROJECT



Folly Beach (before)

Folly Beach (after)

South Carolina

Project Type	Project Name and Project Reliability	Phase	Extent of Resources at Risk: Structures (residential, commercial)	Environment and Habitat	Infrastructure (roads, water/sewer lines, boardwalks, navigation structures)	Critical Facilities (police, fire, schools, hospitals, nursing homes)	Evacuation and Re-entry Routes	Recreation	Consequence/ Economic Impact Rating
Geographic Area: Little River Inlet to Georgetown Harbor									
NV	Calabash Creek	N							4
NV	Little River Inlet	N							4
CSRM[2]	Myrtle Beach Reach 1 - North Myrtle Beach	C	••	•	••	•	•	••	
NV[1]	AIWW - Little River to Winyah Bay	N							5
CSRM	Myrtle Beach Reach 2 - Myrtle Beach	C	••	•	••	•	•	••	
CSRM	Myrtle Beach Reach 3 - Garden City/Surfside	C	••	•	••	•	•	••	
NV[3]	Murrells Inlet	N							4
CSRM	Pawleys Island	A	•	••	•	•	•••	••	
NV	North Inlet	Non-Fed							
NV	Georgetown Harbor	N							4
Geographic Area: Georgetown Harbor to Charleston Harbor									
NV	North Santee River Inlet	Non-Fed							
NV	South Santee River Inlet	Non-Fed							
NV	Town Creek Inlet	N							4
NV	AIWW - Winyah Bay to Charleston	N							5
NV	Price Inlet	Non-Fed							
NV	Capers Inlet	Non-Fed							
NV	Dewees Inlet	Non-Fed							
NV	Charleston Harbor	N							1
Geographic Area: Charleston Harbor to Calibogue Sound									
NV	Lighthouse Inlet	Non-Fed							
CSRM	Folly Beach	C	•	••	•	•	•••	••	
NV[4]	Stono Inlet - Folly River	N							4
NV	Captain Sams Inlet	Non-Fed							
NV	North Edisto River Inlet	Non-Fed							
NV	AIWW - Charleston to Port Royal Sound	N							5
CSRM	Edisto Island	S	•	••	•	•	•••	•	
NV	St Helena Sound	Non-Fed							
CSRM	Hunting Island	C	•	••	••	•	•	•	
NV	Fripp Inlet	Non-Fed							
NV	Skull Inlet	Non-Fed							
NV	Trenchards Inlet	Non-Fed							
NV	Port Royal Sound	N							5
NV	Calibogue Sound	Non-Fed							

Project Type

CSRM = Coastal Storm Risk Management
NV = Navigation
ER = Ecosystem Restoration

Project Reliability

Indicated by background colors:

Green = Good (CSRM, NV)
Yellow = Intermediate (CSRM), Moderate (NV)
Orange = Poor (NV)
Pink = Failing (NV)
Red = Poor (CSRM), Failed (NV)
Purple = Unconstructed (CSRM)

Phase

S = Study
E = Pre-construction engineering and design
A = Awaiting initial construction funds
P = Partial construction funds received
C = Initial construction completed
U = Under Construction
R = Renourishment(s) initiated
N = Navigation maintenance

Extent of Resources at Risk

Coastal Storm Risk Management

••• = Significant
•• = Moderate
• = Minimal
x = None

Navigation

1 = Demonstrated highest economic impact or >10M Tons. Imminent life safety impact.
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5 = Negligible economics (Recreation Harbors, No commercial Activity). No life safety impact.

For complete definitions see page 7.

Footnotes

(1) Estimated future Federal costs are shown for the entire Atlantic Intracoastal Waterway Navigation O&M project in the first entry, **AIWW - Little River to Winyah Bay.** The project is split into three reaches for regional management purposes.

(2) Estimated future Federal costs are shown for the entire Myrtle Beach coastal storm risk management project in the first entry, **Myrtle Beach Reach 1 - North Myrtle Beach**. The project has three reaches, each with different design templates and non-Federal sponsors.

(3) Murrells Inlet: This project is navigation dredging of Murrells Inlet with material placement on Garden City Beach and/or Huntington Beach State Park.

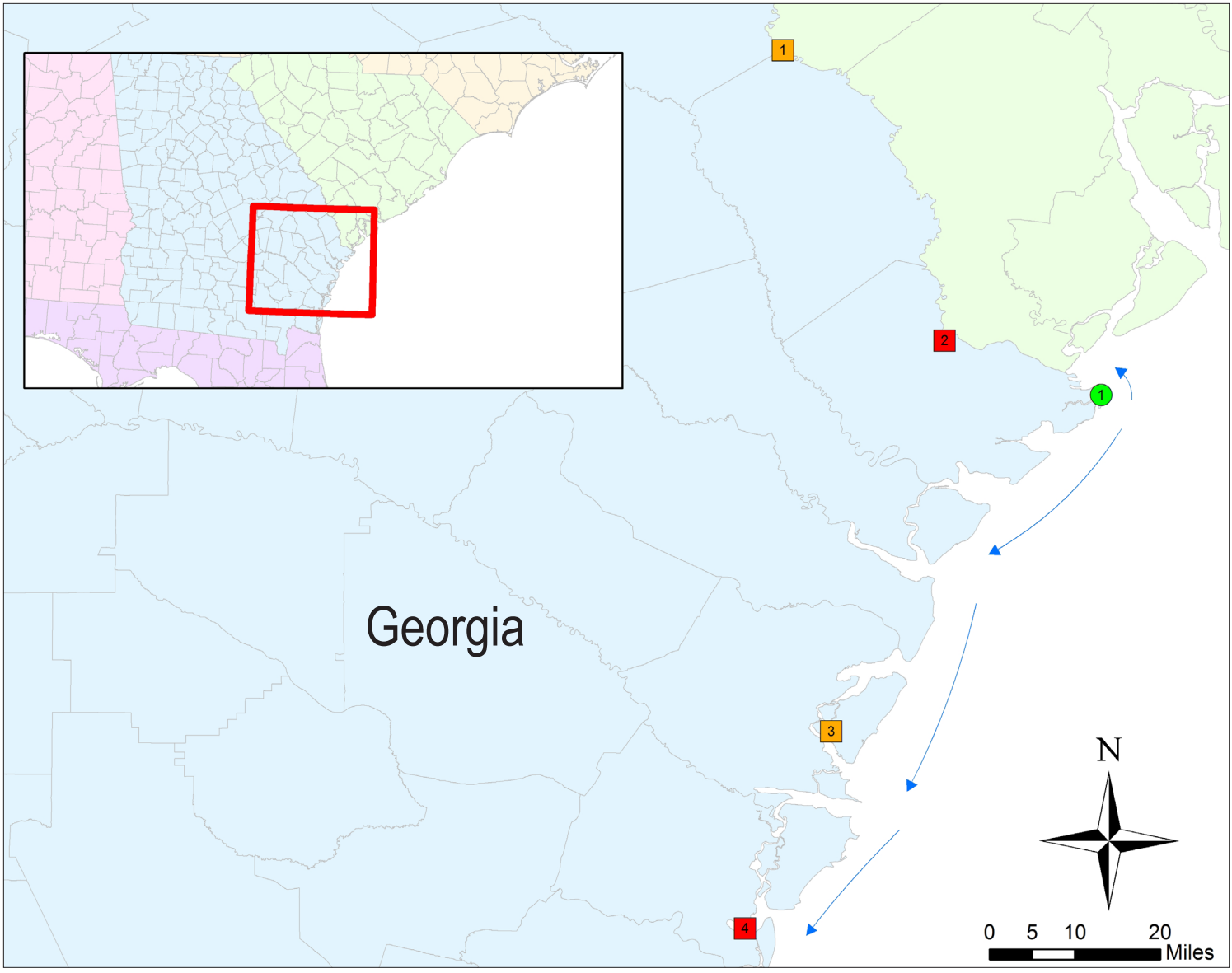
(4) Stono Inlet-Folly River: This project is navigation dredging of Stono Inlet with material placement on Bird Key.

South Carolina

Project Name and Project Reliability	Phase	Estimated Future Federal Costs					
		Total (FY 2013 - FY 2017)	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
Geographic Area: Little River Inlet to Georgetown Harbor							
Calabash Creek	N	$885,000	$885,000	$0	$0	$0	$0
Little River Inlet	N	$3,200,000	$3,200,000	$0	$0	$0	$0
Myrtle Beach Reach 1 - North Myrtle Beach	C	$900,000	$300,000	$200,000	$200,000	$200,000	$0
AIWW - Little River to Winyah Bay	N	$48,499,000	$11,750,000	$12,103,000	$12,466,000	$6,000,000	$6,180,000
Myrtle Beach Reach 2 - Myrtle Beach	C	$0	$0	$0	$0	$0	$0
Myrtle Beach Reach 3 - Garden City/Surfside	C	$0	$0	$0	$0	$0	$0
Murrells Inlet	N	$6,500,000	$6,500,000	$0	$0	$0	$0
Pawleys Island	A	$6,960,000	$6,935,000	$0	$25,000	$0	$0
North Inlet	Non-Fed						
Georgetown Harbor	N	$47,000,000	$6,000,000	$15,000,000	$15,000,000	$5,500,000	$5,500,000
Geographic Area: Georgetown Harbor to Charleston Harbor							
North Santee River Inlet	Non-Fed						
South Santee River Inlet	Non-Fed						
Town Creek Inlet	N	$3,121,000	$546,000	$600,000	$625,000	$650,000	$700,000
AIWW - Winyah Bay to Charleston	N	$0	$0	$0	$0	$0	$0
Price Inlet	Non-Fed						
Capers Inlet	Non-Fed						
Dewees Inlet	Non-Fed						
Charleston Harbor	N	$107,051,000	$21,781,000	$18,000,000	$27,270,000	$19,000,000	$21,000,000
Geographic Area: Charleston Harbor to Calibogue Sound							
Lighthouse Inlet	Non-Fed						
Folly Beach	C	$25,450,000	$400,000	$25,000,000	$0	$50,000	$0
Stono Inlet - Folly River	N	$7,330,000	$2,000,000	$500,000	$2,100,000	$525,000	$2,205,000
Captain Sams Inlet	Non-Fed						
North Edisto River Inlet	Non-Fed						
AIWW - Charleston to Port Royal Sound	N	$0	$0	$0	$0	$0	$0
Edisto Island	S	$0	$0	$0	$0	$0	$0
St Helena Sound	Non-Fed						
Hunting Island	C	$0	$0	$0	$0	$0	$0
Fripp Inlet	Non-Fed						
Skull Inlet	Non-Fed						
Trenchards Inlet	Non-Fed						
Port Royal Sound	N	$0	$0	$0	$0	$0	$0
Calibogue Sound	Non-Fed						
Totals		$353,894,000	$83,797,000	$95,609,000	$82,618,000	$43,925,000	$47,945,000

Opportunities for Action

1. Historical beneficial uses of dredged material from **Little River Inlet, Murrells Inlet,** and **Folly River** should be continued when need and funding allow.
2. Beneficial uses of dredged material from **Charleston and Georgetown Harbors** should be studied and implemented at the first practical opportunity. Beneficial uses should not be limited to beach compatible sediment and placement on adjacent beaches.
3. Areas not included in the authorized footprint of the Myrtle Beach Storm Damage Reduction project, such as Arcadian Shores, could be added to the Federal project through a General Re-evaluation Report.
4. Depending on need, the renourishment of **Myrtle Beach** and **Pawleys Island** could be paired to save on mobilization/demobilization costs.


1
2
1
Georgia
3
4
N
0 5 10 20
Miles
Direction of sediment flow

Georgia

PROJECT LEGEND

Key	Type	Project Name
		Geographic Area: Southeast Atlantic Coast
1	NV	Savannah River Between Augusta and Savannah (SRBAS)
		Geographic Area: Savannah Harbor
2	NV	Savannah Harbor
1	CSRM	Tybee Island
3	NV	AIWW - Channel from Port Royal Sound, SC to Cumberland Sound
		Geographic Area: Brunswick Harbor
4	NV	Brunswick Harbor

Coastal Storm Risk Management Project Reliability

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- = POOR
- = UNCONSTRUCTED
- = UNASSIGNED

Navigation Project Reliability

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- = MODERATE
- = POOR
- = FAILING
- = FAILED
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Tybee Island (before)

Tybee Island (after)

Georgia

Project Type	Project Name and Project Reliability	Phase	Extent of Resources at Risk: Structures (residential, commercial)	Environment and Habitat	Infrastructure (roads, water/sewer lines, boardwalks, navigation structures)	Critical Facilities (police, fire, schools, hospitals, nursing homes)	Evacuation and Re-entry Routes	Recreation	Consequence/ Economic Impact Rating
Geographic Area: Southeast Atlantic Coast									
NV	Savannah River Between Augusta and Savannah (SRBAS)	N							5
Geographic Area: Savannah Harbor									
NV	Savannah Harbor	N							1
CSRM	Tybee Island	R	••	••	••	•	••	••	
NV	AIWW - Channel from Port Royal Sound to Cumberland Sound	N							4
Geographic Area: Brunswick Harbor									
NV	Brunswick Harbor	N							3

Project Type

CSRM = Coastal Storm Risk Management
NV = Navigation
ER = Ecosystem Restoration

Project Reliability

Indicated by background colors:

Green = Good (CSRM, NV)
Yellow = Intermediate (CSRM), Moderate (NV)
Orange = Poor (NV)
Pink = Failing (NV)
Red = Poor (CSRM), Failed (NV)
Purple = Unconstructed (CSRM)

Phase

S = Study
E = Pre-construction engineering and design
A = Awaiting initial construction funds
P = Partial construction funds received
C = Initial construction completed
U = Under Construction
R = Renourishment(s) initiated
N = Navigation maintenance

Extent of Resources at Risk

Coastal Storm Risk Management

••• = Significant
•• = Moderate
• = Minimal
x = None

Navigation

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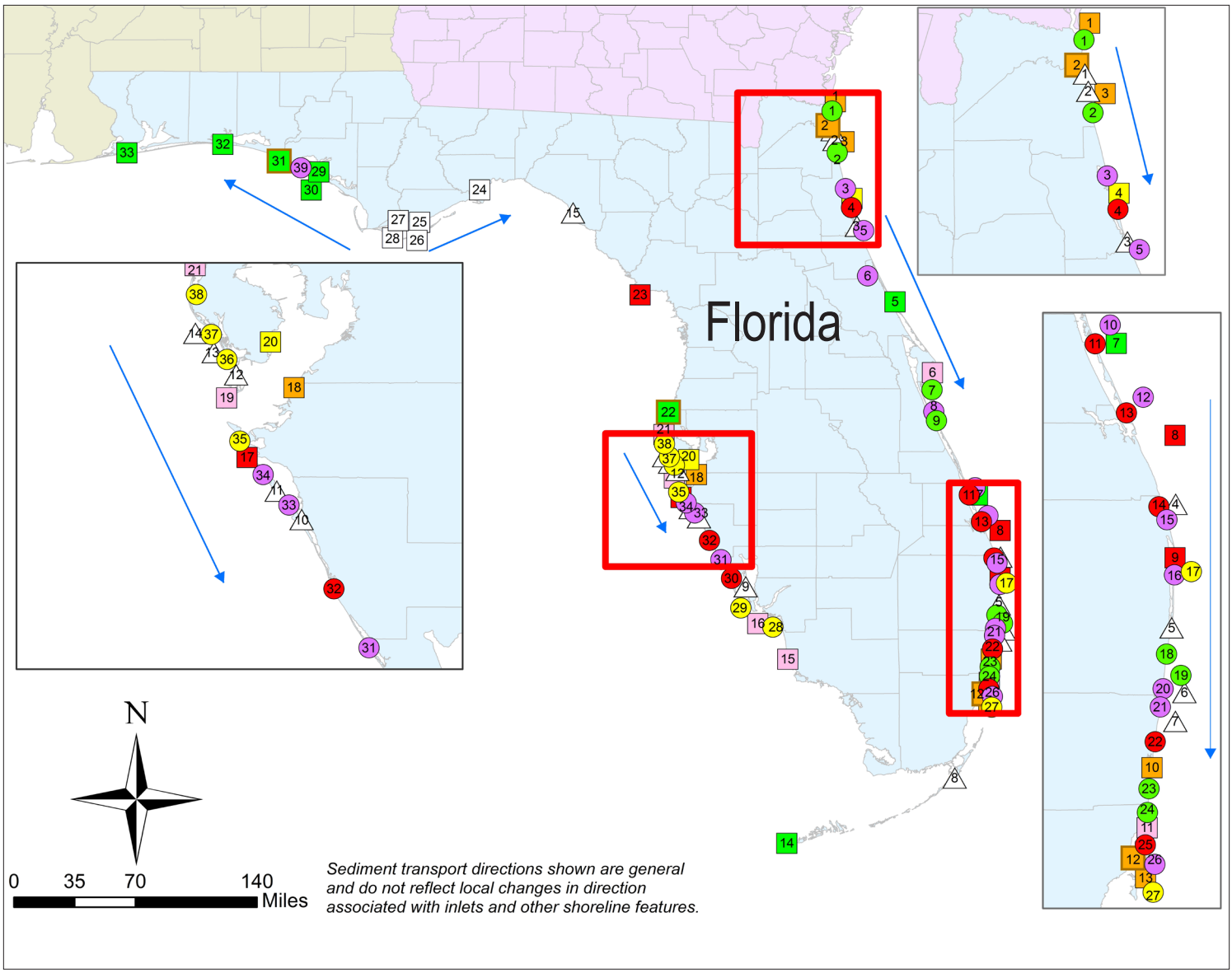
For complete definitions see page 7.

Georgia		Estimated Future Federal Costs					
		Total (FY 2013 - FY 2017)	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
Project Name and Project Reliability	Phase	Geographic Area: Unassigned					
Savannah River Between Augusta and Savannah (SRBAS)	N	$28,255,000	$5,322,000	$5,482,000	$5,646,000	$5,815,000	$5,990,000
Geographic Area: Savannah Harbor, GA							
Savannah Harbor	N	$706,462,000	$96,150,000	$176,690,000	$195,760,000	$184,863,000	$52,999,000
Tybee Island	R	$5,476,000	$0	$0	$0	$5,476,000	$0
AIWW - Channel from Port Royal Sound to Cumberland Sound	N	$82,812,000	$15,598,000	$16,066,000	$16,548,000	$17,044,000	$17,556,000
Geographic Area: Brunswick Harbor, GA							
Brunswick Harbor	N	$91,652,000	$17,263,000	$17,781,000	$18,314,000	$18,864,000	$19,430,000
Totals		$914,657,000	$134,333,000	$216,019,000	$236,268,000	$232,062,000	$95,975,000

Opportunities for Action

1. Studies have shown that nearshore placement of a portion of the material dredged from the Savannah Harbor Navigation Project Entrance Channel in shallow water would be a benefit to the beach (Tybee Island coastal storm risk management project), however due to the requirement to use the "least cost" disposal method for dredged material, this method is not currently being used.


Florida
N
0 35 70 140
Miles
Sediment transport directions shown are general and do not reflect local changes in direction associated with inlets and other shoreline features.
Direction of sediment flow

Florida

PROJECT LEGEND

Key	Type	Project Name
		Geographic Area: Northeast Atlantic Coast (Jacksonville District)
1	NV	St. Mary´s Entrance/Fernandina Harbor
1	CSRM	Nassau County SPP
2	NV	Atlantic Intracoastal Waterway (AIWW)
1	NV	Nassau Sound
2	NV	Ft. George Inlet
3	NV	St. Johns River/Jacksonville Harbor
2	CSRM	Duval County BEC
3	CSRM	St. Johns County SPP - Feasibility
4	NV	St. Augustine Inlet
4	CSRM	St. Johns County BEC
3	NV	Matanzas
5	CSRM	Flager County SPP - Feasibility
6	CSRM	Volusia County - Feasibility
5	NV	Ponce de Leon Inlet
		Geographic Area: Central Atlantic Coast (Jacksonville District)
6	NV	Canaveral Harbor
7	CSRM	Brevard County - North Reach
8	CSRM	Brevard County - Mid Reach GRR
9	CSRM	Brevard County, South Reach
10	CSRM	Indian River County
7	NV	Ft. Pierce Inlet
11	CSRM	Fort Pierce Beach SPP
12	CSRM	St. Lucie County SPP - Feasibility
13	CSRM	Martin County HSDR
8	NV	St. Lucie Inlet
4	NV	Jupiter Inlet

Coastal Storm Risk Management Project Reliability

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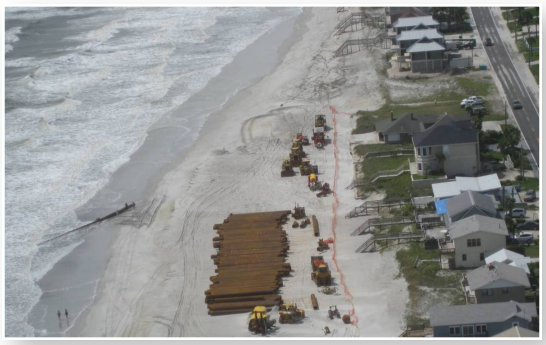
Navigation Project Reliability

- = GOOD
- = MODERATE
- = POOR
- = FAILING
- = FAILED
- = UNASSIGNED

= INLET ONLY, NOT A FEDERAL NAVIGATION PROJECT

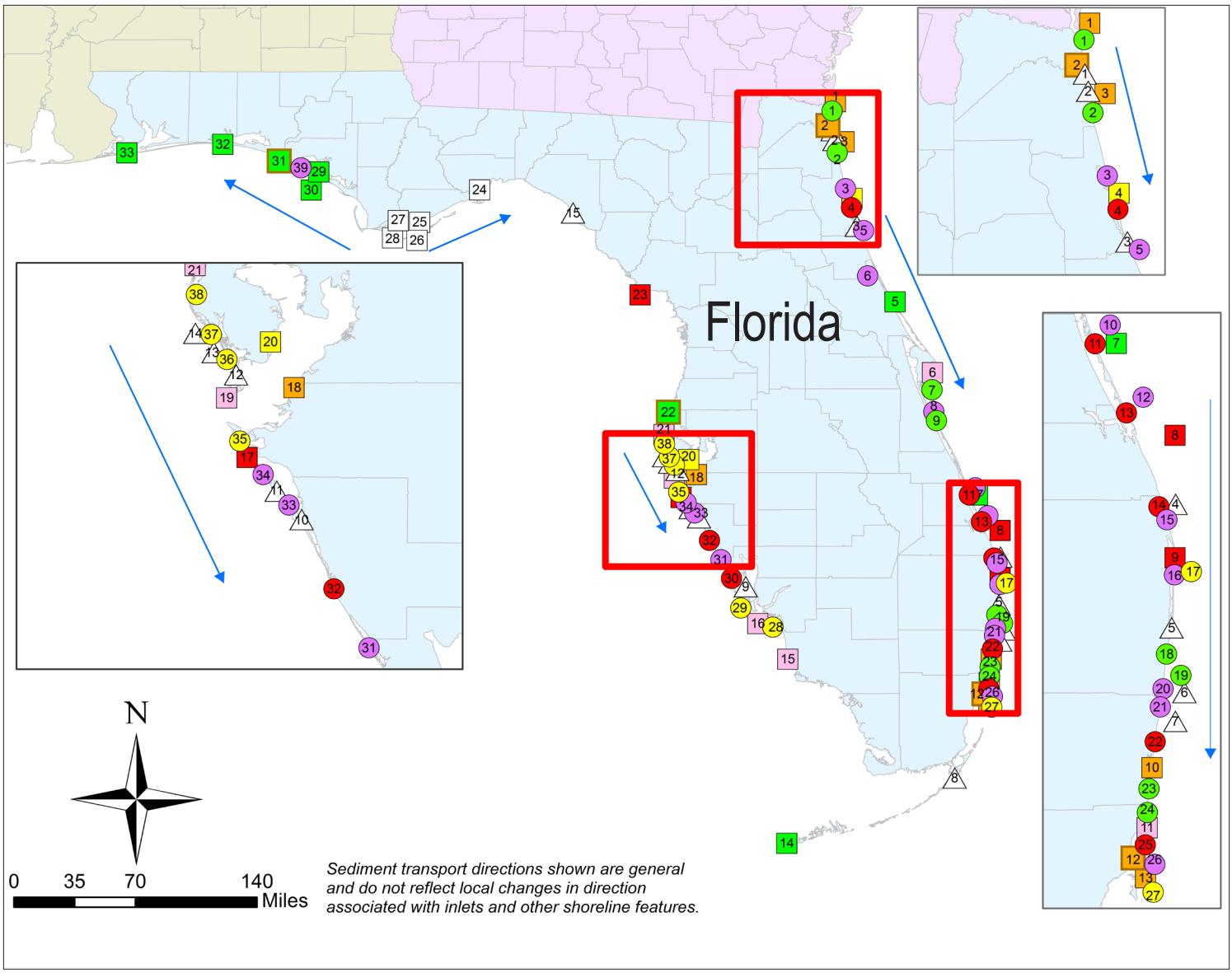
= STATEWIDE PROJECTS OUTLINED

= REGIONAL PROJECTS OUTLINED



Fernandina Beach (before)

Fernandina Beach (after)


Florida
N
0 35 70 140
Miles
Sediment transport directions shown are general and do not reflect local changes in direction associated with inlets and other shoreline features.
Direction of sediment flow

Florida Continued

PROJECT LEGEND

Key	Type	Project Name
Geographic Area: Southeast Atlantic Coast (Jacksonville District)		
14	CSRM	Palm Beach SPP - Jupiter/Carlin
15	CSRM	Palm Beach SPP - Juno Beach
9	NV	Lake Worth/Palm Beach Inlet
16	CSRM	Palm Beach SPP - Midtown Palm Beach
17	CSRM	Palm Beach SPP - Ocean Ridge
5	NV	South Lake Worth/Boynton Inlet
18	CSRM	Palm Beach SPP - Delray Beach
19	CSRM	Palm Beach SPP - North Boca Raton
20	CSRM	Palm Beach SPP - Central Boca Raton
6	NV	Boca Raton Inlet
21	CSRM	Broward County SPP - Segment 1 Feasibility
7	NV	Hillsboro Inlet
22	CSRM	Broward County SPP - Segment II (Ft. Lauderdale)
10	NV	Port Everglades
23	CSRM	Broward County SPP - Segment III (Hollywood/Hallandale)
24	CSRM	Dade County BEC - Sunny Isles
11	NV	Bakers Haulover Inlet
25	CSRM	Dade County BEC - Bal Harbor
12	NV	Intracoastal Waterway- Jacksonville to Miami (IWW)
26	CSRM	Miami Beach Section 227
13	NV	Government Cut/Miami Harbor
27	CSRM	Virginia Key
Geographic Area: Florida Keys (Jacksonville District)		
8	NV	Largo Sound
14	NV	Key West Harbor

Coastal Storm Risk Management Project Reliability

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Navigation Project Reliability

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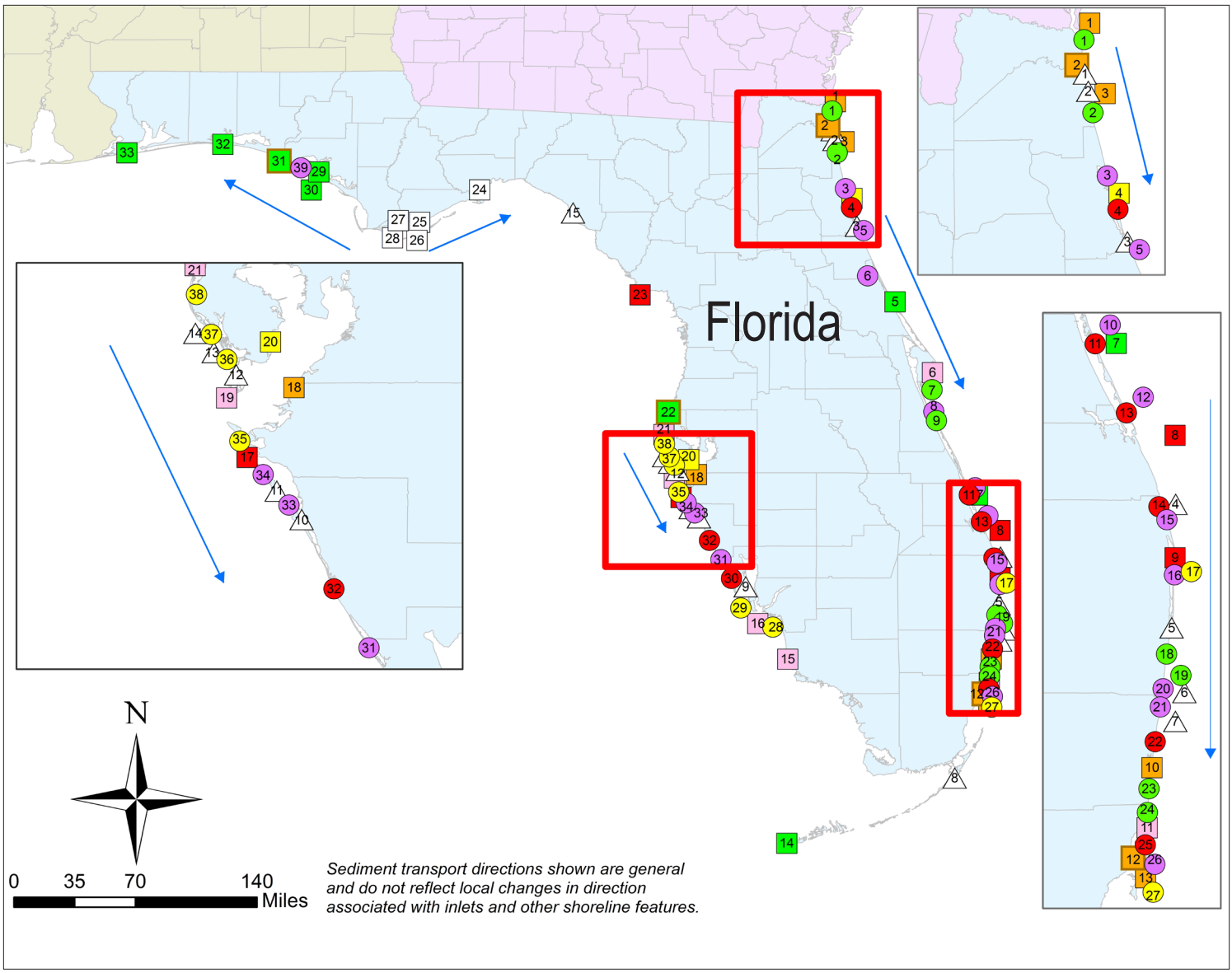
Brevard County (before)

Brevard County (after)


Florida
N
0 35 70 140
Miles
Sediment transport directions shown are general and do not reflect local changes in direction associated with inlets and other shoreline features.
Direction of sediment flow

Florida Continued

PROJECT LEGEND

Geographic Area: Southwest Gulf Coast (Jacksonville District)		
15	NV	Gordon-Big Marco Pass
28	CSRM	Lee County BEC - Estero Island
16	NV	Estero Pass/Fort Meyers
29	CSRM	Lee County BEC - Captiva
9	NV	Boca Grande Channel/Charlotte Harbor
30	CSRM	Lee County BEC - Gasparilla
31	CSRM	Charlotte County
32	CSRM	Sarasota County - Venice Beach
10	NV	Big Sarasota Pass/Sarasota Bay
33	CSRM	Lido Key SPP
11	NV	New Pass
34	CSRM	Sarasota County BEC - Longboat Key
17	NV	Longboat Pass
35	CSRM	Manatee County SPP - Anna Maria Island
18	NV	Port Manatee
19	NV	Tampa Harbor
12	NV	Passa-A-Grille
36	CSRM	Pinellas County - Long Key
13	NV	Blind Pass
20	NV	St. Petersburg Harbor
37	CSRM	Pinellas County - Treasure Island
14	NV	Johns Pass
38	CSRM	Pinellas County - Sand Key
21	NV	Clearwater Pass/Harbor
22	NV	Intracoastal Waterway- Caloosahatchee River to Anclote River (IWW- CR to AR) and Casey´s Pass/Venice Inlet
Geographic Area: Big Bend Gulf Coast (Jacksonville District)		
23	NV	Cedar Key Harbor
15	NV	Keaton Beach
Geographic Area: Western Florida Panhandle (Mobile District)		
24	NV	Panacea Harbor
25	NV	Apalachicola Bay: East Point
26	NV	Apalachicola Bay St. George Island Channel
27	NV	Apalachicola Bay Two Mile Channel
28	NV	Apalachicola Bay Scipio Creek
29	NV	Panama City: Bay Channel
30	NV	Panama City: Entrance Channel
39	CSRM	Panama City Beaches
31	NV	GIWW Dauphin Island to Carrabelle
32	NV	Destin/East Pass
33	NV	Pensacola Harbor

Coastal Storm Risk Management Project Reliability

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Navigation Project Reliability

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Belleair Beach (before)

Belleair Beach (after)

Florida

Project Type	Project Name and Project Reliability	Phase	Extent of Resources at Risk: Structures (residential, commercial)	Environment and Habitat	Infrastructure (roads, water/sewer lines, boardwalks, navigation structures)	Critical Facilities (police, fire, schools, hospitals, nursing homes)	Evacuation and Re-entry Routes	Recreation	Consequence/ Economic Impact Rating
Geographic Area: Northeast Atlantic Coast (Jacksonville District)									
NV	St. Mary´s Entrance/Fernandina Harbor	N							4
CSRM	Nassau County SPP	R	••	•••	••	•	••	•••	
NV	Atlantic Intracoastal Waterway (AIWW)	N							2
NV	Nassau Sound	Non-Fed							
NV	Ft. George Inlet	Non-Fed							
NV	St. Johns River/Jacksonville Harbor	N							1
CSRM	Duval County BEC	R	•••	•••	•••	•	••	•••	
CSRM	St. Johns County SPP - Feasibility	S	••	•••	••	•	•••	•••	
NV	St. Augustine Inlet	N							5
CSRM	St. Johns County BEC	R	•••	•••	•••	•	••	•••	
NV	Matanzas	Non-Fed							
CSRM	Flager County SPP - Feasibility	S	••	•••	••	•	•••	•••	
CSRM	Volusia County - Feasibility	S	•••	••	•••	••	••	•••	
NV	Ponce de Leon Inlet	N							4
Geographic Area: Central Atlantic Coast (Jacksonville District)									
NV	Canaveral Harbor	N							1
CSRM	Brevard County - North Reach	R	•••	•••	•••	•	••	•••	
CSRM	Brevard County - Mid Reach GRR	S	•••	•••	•••	•	••	•••	
CSRM	Brevard County, South Reach	R	•••	•••	•••	•	••	•••	
CSRM	Indian River County	A	x	x	x	x	x	x	
NV	Ft. Pierce Inlet	N							5
CSRM	Fort Pierce Beach SPP	R	•••	•••	•••	•	•••	•••	
CSRM	St. Lucie County SPP - Feasibility	S	••	•••	••	•••	•••	•••	
CSRM	Martin County HSDR	R	•••	•••	•••	•	•••	•••	
NV	St. Lucie Inlet	N							5
NV	Jupiter Inlet	Non-Fed							

Project Type

CSRM = Coastal Storm Risk Management
NV = Navigation
ER = Ecosystem Restoration

Project Reliability

Indicated by background colors:

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Orange = Poor (NV)
Pink = Failing (NV)
Red = Poor (CSRM), Failed (NV)
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Phase

S = Study
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Extent of Resources at Risk

Coastal Storm Risk Management

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Navigation

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For complete definitions see page 7.

Florida

Project Name and Project Reliability	Phase	Estimated Future Federal Costs					
		Total (FY 2013 - FY 2017)	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
Geographic Area: Northeast Atlantic Coast (Jacksonville District)							
St. Mary´s Entrance/Fernandina Harbor	N	$12,500,000	$2,500,000	$2,500,000	$2,500,000	$2,500,000	$2,500,000
Nassau County SPP	R	$9,300,000	$8,000,000	$100,000	$100,000	$100,000	$1,000,000
Atlantic Intracoastal Waterway (AIWW)	N	$3,500,000	$700,000	$700,000	$700,000	$700,000	$700,000
Nassau Sound	Non-Fed						
Ft. George Inlet	Non-Fed						
St. Johns River/Jacksonville Harbor	N	$42,570,000	$7,570,000	$8,000,000	$8,000,000	$9,000,000	$10,000,000
Duval County BEC	R	$7,447,000	$150,000	$150,000	$450,000	$650,000	$6,047,000
St. Johns County SPP - Feasibility	S	$0	$0	$0	$0	$0	$0
St. Augustine Inlet	N	$0	$0	$0	$0	$0	$0
St. Johns County BEC	R	$16,400,000	$500,000	$500,000	$200,000	$200,000	$15,000,000
Matanzas	Non-Fed						
Flager County SPP - Feasibility	S	$0	$0	$0	$0	$0	$0
Volusia County - Feasibility	S	$0	$0	$0	$0	$0	$0
Ponce de Leon Inlet	N	$0	$0	$0	$0	$0	$0
Geographic Area: Central Atlantic Coast (Jacksonville District)							
Canaveral Harbor	N	$22,500,000	$4,500,000	$4,500,000	$4,500,000	$4,500,000	$4,500,000
Brevard County - North Reach	R	$12,000,000	$500,000	$10,000,000	$500,000	$500,000	$500,000
Brevard County - Mid Reach GRR	S	$22,000,000	$500,000	$20,000,000	$500,000	$500,000	$500,000
Brevard County, South Reach	R	$11,500,000	$0	$500,000	$10,000,000	$500,000	$500,000
Indian River County	A	$0	$0	$0	$0	$0	$0
Ft. Pierce Inlet	N	$0	$0	$0	$0	$0	$0
Fort Pierce Beach SPP	R	$15,400,000	$5,000,000	$200,000	$5,000,000	$200,000	$5,000,000
St. Lucie County SPP - Feasibility	S	$0	$0	$0	$0	$0	$0
Martin County HSDR	R	$1,150,000	$350,000	$200,000	$200,000	$200,000	$200,000
St. Lucie Inlet	N	$0	$0	$0	$0	$0	$0
Jupiter Inlet	Non-Fed						

Opportunities for Action

1. Regional Sediment Management actions combining dredging needs for the **St. Augustine Inlet** and IWW with sand needs of the St. Johns County coastal storm risk management project should continue. RSM studies are evaluating a systems approach for these authorized projects plus additional needs from potential Hurricane and Storm Damage Reduction Projects on the nearby beaches of South Ponte Vedra and Vilano Beach, currently undergoing feasibility study. RSM studies will analyze how projects can maximize RSM opportunities, utilizing sand from offshore borrow sources, beach quality dredged material from the Intracoastal Waterway (IWW), and sand dredged from the **St. Augustine Inlet** Federal channel, ebb shoal, and flood shoal complex.
2. Material dredged from the Intracoastal Waterway inside **Matanzas Inlet** in St. Johns County has been stored in an upland disposal site. Periodically, sand from this site has been transferred to the beaches of Summer Haven in St. Johns County, providing hurricane and storm damage reduction for coastal infrastructure while creating capacity in the disposal site for future IWW dredging. Similar operations should continue in the future at this site, and at other sites where beach quality material is contained.
3. The beach at **Lummus Park**, Miami-Dade County accretes a significant amount of sand due to its location, directly north of the northern jetty of Government Cut. The local sponsor for the Dade County Beach Erosion Control and Hurricane Protection Project has removed sand from this beach and backpassed it north to erosional beaches. This operation was again carried out during FY12 renourishment of the Federal project but with difficulty due to local concerns over reducing the beach width of **Lummus Park**. In light of the current sand shortage for Miami-Dade County, this operation is key to maintenance of downdrift beaches and coordination should continue to help assure its viability.
4. LWI sand transfer plant is a future way to use sand in an impoundment basin on downdrift beaches, but there must be public access.
5. Most navigation projects with beach quality sand put material on the beach, but the timing can be worked to coordinate Harbor O&M, IWW O&M, and CG nourishments.

Florida

Project Type	Project Name and Project Reliability	Phase	Extent of Resources at Risk (Cont.)						
			Structures (residential, commercial)	Environment and Habitat	Infrastructure (roads, water/sewer lines, boardwalks, navigation structures)	Critical Facilities (police, fire, schools, hospitals, nursing homes)	Evacuation and Re-entry Routes	Recreation	Consequence/ Economic Impact Rating
	Geographic Area: Southeast Atlantic Coast (Jacksonville District)								
CSRM	Palm Beach SPP - Jupiter/Carlin	R	•••	•••	•••	••	•••	•••	
CSRM	Palm Beach SPP - Juno Beach	A	•••	•••	•••	••	•••	•••	
NV	Lake Worth/Palm Beach Inlet	N							1
CSRM	Palm Beach SPP - Midtown Palm Beach	A	•••	•••	•••	••	•••	•••	
CSRM	Palm Beach SPP - Ocean Ridge	R	•••	•••	•••	••	•••	•••	
NV	South Lake Worth/Boynton Inlet	Non-Fed							5
CSRM	Palm Beach SPP - Delray Beach	R	•••	•••	•••	••	•••	•••	
CSRM	Palm Beach SPP - North Boca Raton	R	•••	•••	•••	•	•••	•••	
CSRM	Palm Beach SPP - Central Boca Raton	A	•••	•••	•••	•	•••	•••	
NV	Boca Raton Inlet	Non-Fed							
CSRM	Broward County SPP - Segment 1 Feasibility	S	•••	•••	•••	••	•••	•••	
NV	Hillsboro Inlet	Non-Fed							
CSRM	Broward County SPP - Segment II (Ft. Lauderdale)	R	•••	•••	•••	••	•••	•••	
NV	Port Everglades	N							1
CSRM	Broward County SPP - Segment III (Hollywood/ Hallandale)	R	•••	•••	•••	••	•••	•••	
CSRM	Dade County BEC - Sunny Isles	R	•••	•••	•••	••	•••	•••	
NV	Bakers Haulover Inlet	N							5
CSRM	Dade County BEC - Bal Harbor	R	•••	•••	•••	••	•••	•••	
NV	Intracoastal Waterway- Jacksonville to Miami (IWW)	N							5
CSRM	Miami Beach Section 227	E	•••	•••	•••	•	•••	•••	
NV	Government Cut/Miami Harbor	N							1
CSRM	Virginia Key	C	•	•••	•	•••	•	•••	
	Geographic Area: Florida Keys (Jacksonville District)								
NV	Largo Sound	Non-Fed							5
NV	Key West Harbor	N							3
	Geographic Area: Southwest Gulf Coast (Jacksonville District)								
NV	Gordon-Big Marco Pass	N							5
CSRM	Lee County BEC - Estero Island	A	•••	•••	•••	••	•••	•••	
NV	Estero Pass/Fort Meyers	N							5
CSRM	Lee County BEC - Captiva	R	•••	•••	•••	•	•••	•••	

Project Type

CSRM = Coastal Storm Risk Management
NV = Navigation
ER = Ecosystem Restoration

Project Reliability

Indicated by background colors:

Green = Good (CSRM, NV)
Yellow = Intermediate (CSRM), Moderate (NV)
Orange = Poor (NV)
Pink = Failing (NV)
Red = Poor (CSRM), Failed (NV)
Purple = Unconstructed (CSRM)

Phase

S = Study
E = Pre-construction engineering and design
A = Awaiting initial construction funds
P = Partial construction funds received
C = Initial construction completed
U = Under Construction
R = Renourishment(s) initiated
N = Navigation maintenance

Extent of Resources at Risk

Coastal Storm Risk Management

••• = Significant
•• = Moderate
• = Minimal
x = None

Navigation

1 = Demonstrated highest economic impact or >10M Tons. Imminent life safety impact.
2 = Demonstrated high economic impact or 5-10M Tons. Probable life safety impact.
3 = Demonstrated moderate economic impact or 1-5M Tons. Possible life safety impact.
4 = Low economic impact or <1M Tons. No life safety impact.
5 = Negligible economics (Recreation Harbors, No commercial Activity). No life safety impact.

For complete definitions see page 7.

Florida

Project Name and Project Reliability	Phase	Estimated Future Federal Costs (Cont.) Total (FY 2013 - FY 2017)	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
Geographic Area: Southeast Atlantic Coast (Jacksonville District)							
Palm Beach SPP - Jupiter/Carlin	R	$10,800,000	$200,000	$10,000,000	$200,000	$200,000	$200,000
Palm Beach SPP - Juno Beach	A	$0	$0	$0	$0	$0	$0
Lake Worth/Palm Beach Inlet	N	$15,000,000	$3,000,000	$3,000,000	$3,000,000	$3,000,000	$3,000,000
Palm Beach SPP - Midtown Palm Beach	A	$0	$0	$0	$0	$0	$0
Palm Beach SPP - Ocean Ridge	R	$11,743,000	$431,000	$431,000	$4,648,000	$5,980,000	$254,000
South Lake Worth/Boynton Inlet	Non-Fed						
Palm Beach SPP - Delray Beach	R	$7,000,000	$500,000	$6,500,000	$0	$0	$0
Palm Beach SPP - North Boca Raton	R	$5,755,000	$5,755,000	$0	$0	$0	$0
Palm Beach SPP - Central Boca Raton	A	$0	$0	$0	$0	$0	$0
Boca Raton Inlet	Non-Fed						
Broward County SPP - Segment 1 Feasibility	S	$0	$0	$0	$0	$0	$0
Hillsboro Inlet	Non-Fed						
Broward County SPP - Segment II (Ft. Lauderdale)	R	$18,200,000	$100,000	$100,000	$9,000,000	$9,000,000	$0
Port Everglades	N	$0	$0	$0	$0	$0	$0
Broward County SPP - Segment III (Hollywood/ Hallandale)	R	$15,200,000	$4,600,000	$200,000	$200,000	$200,000	$10,000,000
Dade County BEC - Sunny Isles	R	$2,500,000	$300,000	$176,000	$1,980,000	$22,000	$22,000
Bakers Haulover Inlet	N	$0	$0	$0	$0	$0	$0
Dade County BEC - Bal Harbor	R	$8,100,000	$300,000	$624,000	$7,020,000	$78,000	$78,000
Intracoastal Waterway- Jacksonville to Miami (IWW)	N	$15,000,000	$3,000,000	$3,000,000	$3,000,000	$3,000,000	$3,000,000
Miami Beach Section 227	E	$0	$0	$0	$0	$0	$0
Government Cut/Miami Harbor	N	$85,344,000	$51,206,000	$34,138,000	$0	$0	$0
Virginia Key	C	$0	$0	$0	$0	$0	$0
Geographic Area: Florida Keys (Jacksonville District)							
Largo Sound	Non-Fed						
Key West Harbor	N	$0	$0	$0	$0	$0	$0
Geographic Area: Southwest Gulf Coast (Jacksonville District)							
Gordon-Big Marco Pass	N	$0	$0	$0	$0	$0	$0
Lee County BEC - Estero Island	A	$1,500,000	$300,000	$300,000	$300,000	$300,000	$300,000
Estero Pass/Fort Meyers	N	$106,604,000	$76,314,000	$4,620,000	$10,670,000	$10,000,000	$5,000,000
Lee County BEC - Captiva	R	$11,200,000	$10,000,000	$300,000	$300,000	$300,000	$300,000

Florida

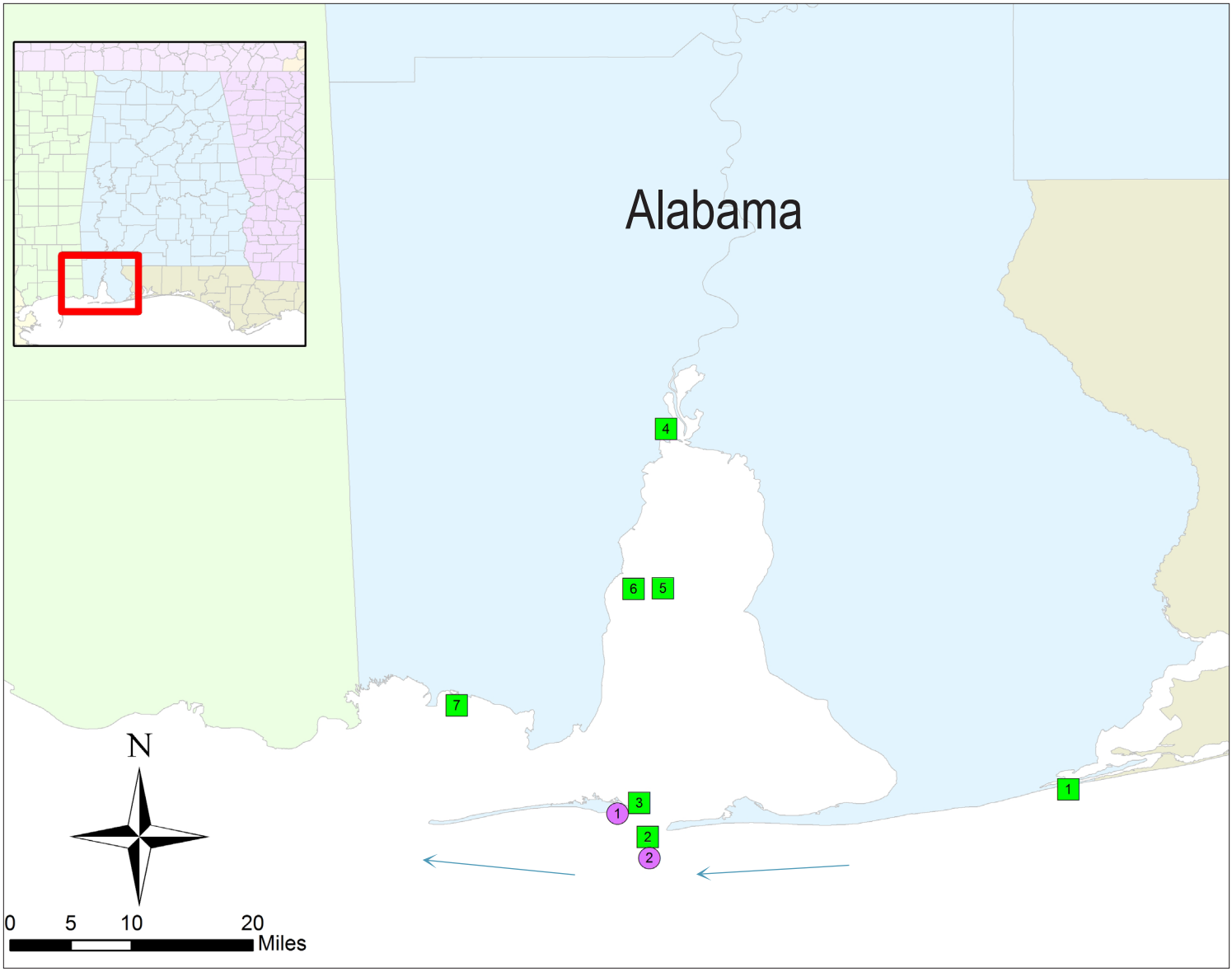
Project Type	Project Name and Project Reliability	Phase	Extent of Resources at Risk (Cont.)						
			Structures (residential, commercial)	Environment and Habitat	Infrastructure (roads, water/sewer lines, boardwalks, navigation structures)	Critical Facilities (police, fire, schools, hospitals, nursing homes)	Evacuation and Re-entry Routes	Recreation	Consequence/ Economic Impact Rating
Geographic Area: Southwest Gulf Coast (Jacksonville District)									
NV	Boca Grande Channel/Charlotte Harbor	Non-Fed							5
CSRM	Lee County BEC - Gasparilla	R	•••	•••	•••	•	•••	•••	
CSRM	Charlotte County	A	••	•••	••	•	•••	•••	
CSRM	Sarasota County - Venice Beach	R	•••	•••	•••	•••	••	•••	
NV	Big Sarasota Pass/Sarasota Bay	Non-Fed							
CSRM	Lido Key SPP	E	••	•••	••	•	•••	•••	
NV	New Pass	Non-Fed							5
CSRM	Sarasota County BEC - Longboat Key	A	•••	•••	•••	••	•••	•••	
NV	Longboat Pass	N							5
CSRM	Manatee County SPP - Anna Maria Island	R	•••	•••	•••	••	•••	•••	
NV	Port Manatee	N							3
NV	Tampa Harbor	N							1
NV	Passa-A-Grille	Non-Fed							5
CSRM	Pinellas County - Long Key	R	•••	•••	•••	•	•••	•••	
NV	Blind Pass	Non-Fed							5
NV	St. Petersburg Harbor	N							4
CSRM	Pinellas County - Treasure Island	R	•••	•••	•••	•	•••	•••	
NV	Johns Pass	Non-Fed							5
CSRM	Pinellas County - Sand Key	R	•••	•••	•••	•	•••	•••	
NV	Clearwater Pass/Harbor	N							5
NV	Intracoastal Waterway- Caloosahatchee River to Anclote River (IWW- CR to AR) and Casey´s Pass/Venice Inlet	N							4
Geographic Area: Big Bend Gulf Coast (Jacksonville District)									
NV	Cedar Key Harbor	N							5
NV	Keaton Beach	Non-Fed							5
Geographic Area: Western Florida Panhandle (Mobile District)									
NV	Panacea Harbor	N							4
NV	Apalachicola Bay: East Point	N							
NV	Apalachicola Bay St. George Island Channel	N							
NV	Apalachicola Bay Two Mile Channel	N							
NV	Apalachicola Bay Scipio Creek	N							
NV	Panama City: Bay Channel	N							3
NV	Panama City: Entrance Channel	N							3
CSRM	Panama City Beaches	F	x	x	x	x	x	x	
NV	GIWW Dauphin Island to Carrabelle	N							4
NV	Destin/East Pass	N							4
NV	Pensacola Harbor	N							4

Footnotes

(1) Totals represents the total estimated future federal costs for the entire state of Florida (Jacksonville and Mobile Districts combined)

Florida

Project Name and Project Reliability	Phase	Estimated Future Federal Costs (Cont.) Total (FY 2013 - FY 2017)	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
Geographic Area: Southwest Gulf Coast (Jacksonville District)							
Boca Grande Channel/Charlotte Harbor	Non-Fed						
Lee County BEC - Gasparilla	R	$11,214,000	$10,000,000	$314,000	$300,000	$300,000	$300,000
Charlotte County	A	$0	$0	$0	$0	$0	$0
Sarasota County - Venice Beach	R	$11,000,000	$9,000,000	$500,000	$500,000	$500,000	$500,000
Big Sarasota Pass/Sarasota Bay	Non-Fed						
Lido Key SPP	E	$21,000,000	$500,000	$19,000,000	$500,000	$500,000	$500,000
New Pass	Non-Fed						
Sarasota County BEC - Longboat Key	A	$0	$0	$0	$0	$0	$0
Longboat Pass	N	$0	$0	$0	$0	$0	$0
Manatee County SPP - Anna Maria Island	R	$6,350,000	$200,000	$50,000	$6,000,000	$50,000	$50,000
Port Manatee	N	$0	$0	$0	$0	$0	$0
Tampa Harbor	N	$30,081,000	$3,000,000	$21,081,000	$3,000,000	$3,000,000	$0
Passa-A-Grille	Non-Fed						
Pinellas County - Long Key	R	$5,184,000	$200,000	$4,398,000	$200,000	$186,000	$200,000
Blind Pass	Non-Fed						
St. Petersburg Harbor	N	$0	$0	$0	$0	$0	$0
Pinellas County - Treasure Island	R	$5,198,000	$200,000	$4,398,000	$200,000	$200,000	$200,000
Johns Pass	Non-Fed						
Pinellas County - Sand Key	R	$1,000,000	$200,000	$200,000	$200,000	$200,000	$200,000
Clearwater Pass/Harbor	N	$0	$0	$0	$0	$0	$0
Intracoastal Waterway- Caloosahatchee River to Anclote River (IWW- CR to AR) and Casey´s Pass/Venice Inlet	N	$0	$0	$0	$0	$0	$0
Geographic Area: Big Bend Gulf Coast (Jacksonville District)							
Cedar Key Harbor	N	$0	$0	$0	$0	$0	$0
Keaton Beach	Non-Fed						
Totals (Jacksonville District)		$581,240,000	$209,576,000	$160,680,000	$83,868,000	$56,566,000	$70,551,000
Geographic Area: Western Florida Panhandle (Mobile District)							
Panacea Harbor	N	$0	$0	$0	$0	$0	$0
Apalachicola Bay: East Point	N	$0	$0	$0	$0	$0	$0
Apalachicola Bay St. George Island Channel	N	$0	$0	$0	$0	$0	$0
Apalachicola Bay Two Mile Channel	N	$0	$0	$0	$0	$0	$0
Apalachicola Bay Scipio Creek	N	$0	$0	$0	$0	$0	$0
Panama City: Bay Channel	N	$0	$0	$0	$0	$0	$0
Panama City: Entrance Channel	N	$5,400,000	$1,800,000	$0	$1,800,000	$0	$1,800,000
Panama City Beaches	F	$0	$0	$0	$0	$0	$0
GIWW Dauphin Island to Carrabelle	N	$28,000,000	$5,600,000	$5,600,000	$5,600,000	$5,600,000	$5,600,000
Destin/East Pass	N	$4,600,000	$0	$2,300,000	$0	$0	$2,300,000
Pensacola Harbor	N	$6,000,000	$2,000,000	$0	$2,000,000	$0	$2,000,000
Totals (Mobile District)		$44,000,000	$9,400,000	$7,900,000	$9,400,000	$5,600,000	$11,700,000
Totals [1]		$625,240,000	$218,976,000	$168,580,000	$93,268,000	$62,166,000	$82,251,000


Alabama
4
6
5
7
3
1
2
2
1
N
0
5
10
20
Miles
Direction of sediment flow

Alabama

PROJECT LEGEND

Key	Type	Project Name
		Geographic Area: Alabama Coast
1	NV	Perdido Pass
2	NV	Mobile Harbor: Bar Channel
1	CSRM	Mobile County - Sand Island Mitigation Project
2	CSRM	Mobile County - Dauphin Island Sand Pilot
3	NV	Dauphin Island
4	NV	Mobile Harbor: River
5	NV	Mobile Harbor: Upper & Lower Bay
6	NV	Mobile Harbor: Theodore Ship Channel
7	NV	Bayou La Batre-Channel

Coastal Storm Risk Management Project Reliability

- = GOOD
- = INTERMEDIATE
- = POOR
- = UNCONSTRUCTED
- = UNASSIGNED

Navigation Project Reliability

- = GOOD
- = MODERATE
- = POOR
- = FAILING
- = FAILED
- = UNASSIGNED

△ = INLET ONLY, NOT A FEDERAL NAVIGATION PROJECT

Mobile Bay

Perdido Beach

Alabama

Project Type	Project Name and Project Reliability	Phase	Extent of Resources at Risk: Structures (residential, commercial)	Environment and Habitat	Infrastructure (roads, water/sewer lines, boardwalks, navigation structures)	Critical Facilities (police, fire, schools, hospitals, nursing homes)	Evacuation and Re-entry Routes	Recreation	Consequence/ Economic Impact Rating
			Geographic Area: Alabama Coast						
NV	Perdido Pass	N							4
NV	Mobile Harbor: Bar Channel	N							1
CSRM	Mobile County - Sand Island Mitigation Project	F	•••	•	•	•	•	•••	
CSRM	Mobile County - Dauphin Island Sand Pilot	C	x	x	x	x	x	x	
NV	Dauphin Island	N							4
NV	Mobile Harbor: River	N							1
NV	Mobile Harbor: Upper & Lower Bay	N							1
NV	Mobile Harbor: Theodore Ship Channel	N							2
NV	Bayou La Batre-Channel	N							3

Project Type

CSRM = Coastal Storm Risk Management
NV = Navigation
ER = Ecosystem Restoration

Project Reliability

Indicated by background colors:

Green = Good (CSRM, NV)
Yellow = Intermediate (CSRM), Moderate (NV)
Orange = Poor (NV)
Pink = Failing (NV)
Red = Poor (CSRM), Failed (NV)
Purple = Unconstructed (CSRM)

Phase

S = Study
E = Pre-construction engineering and design
A = Awaiting initial construction funds
P = Partial construction funds received
C = Initial construction completed
U = Under Construction
R = Renourishment(s) initiated
N = Navigation maintenance

Extent of Resources at Risk

Coastal Storm Risk Management

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•• = Moderate
• = Minimal
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Navigation

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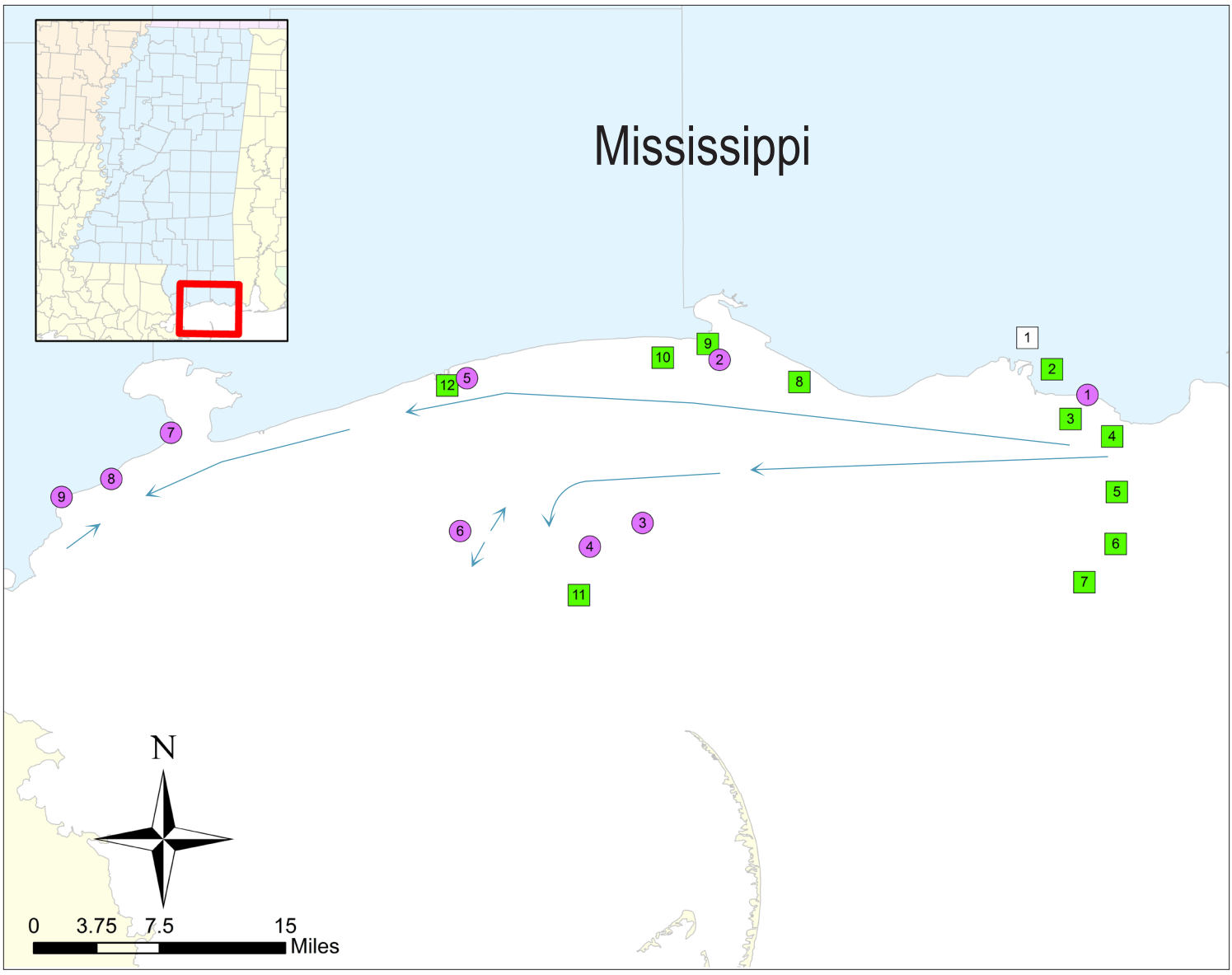
For complete definitions see page 7.

Alabama		Estimated Future Federal Costs					
		Total (FY 2013 - FY 2017)	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
Project Name and Project Reliability	Phase	Geographic Area: Alabama Coast					
Perdido Pass	N	$0	$0	$0	$0	$0	$0
Mobile Harbor: Bar Channel	N	$8,000,000	$0	$4,000,000	$0	$4,000,000	$0
Mobile County - Sand Island Mitigation Project	F	$0	$0	$0	$0	$0	$0
Mobile County - Dauphin Island Sand Pilot	C	$0	$0	$0	$0	$0	$0
Dauphin Island	N	$0	$0	$0	$0	$0	$0
Mobile Harbor: River	N	$25,000,000	$5,000,000	$5,000,000	$5,000,000	$5,000,000	$5,000,000
Mobile Harbor: Upper & Lower Bay	N	$70,000,000	$14,000,000	$14,000,000	$14,000,000	$14,000,000	$14,000,000
Mobile Harbor: Theodore Ship Channel	N	$12,000,000	$4,000,000	$0	$4,000,000	$0	$4,000,000
Bayou La Batre-Channel	N	$800,000	$400,000	$0	$0	$400,000	$0
Totals		$115,800,000	$23,400,000	$23,000,000	$23,000,000	$23,400,000	$23,000,000


Mississippi
N
0 3.75 7.5 15
Miles
Direction of sediment flow

Mississippi

PROJECT LEGEND

Key	Type	Project Name
		Geographic Area: Mississippi Coast
1	NV	Pascagoula: Upper River
2	NV	Pascagoula: River
1	CSRM	Jackson County - Pascagoula Beach Ecosystem Restoration
3	NV	Pascagoula: Upper Sound
4	NV	Pascagoula: Bayou Casotte
5	NV	Pascagoula: Lower Sound
6	NV	Pascagoula: Horn Island Pass
7	NV	Pascagoula: Bar
8	NV	Biloxi: East Access
2	CSRM	Harrison County - Deer Island Ecosystem Restoration - I
9	NV	Biloxi: Lateral
10	NV	Biloxi: West Approach
3	CSRM	Mississippi Sound - Barrier Islands Ecosystem Restoration Camille Cut
4	CSRM	Mississippi Sound - Barrier Islands Ecosystem Restoration North Shore, West Ship Island
11	NV	Gulfport: Bar & Gulf
5	CSRM	Harrison County Beach Dunes
12	NV	Gulfport: Anchorage Basin & Sound
6	CSRM	Mississippi Sound - Barrier Islands Ecosystem Restoration Cat Island
7	CSRM	Hancock County - Bay St Louis Seawall
8	CSRM	Hancock County Beaches
9	CSRM	Hancock County - Bayou Caddy Shoreline Protection

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- = POOR
- = FAILING
- = FAILED
- = UNASSIGNED

△ = INLET ONLY, NOT A FEDERAL NAVIGATION PROJECT

Deer Island

Bay St. Louis

Mississippi

Project Type	Project Name and Project Reliability	Phase	Extent of Resources at Risk: Structures (residential, commercial)	Environment and Habitat	Infrastructure (roads, water/sewer lines, boardwalks, navigation structures)	Critical Facilities (police, fire, schools, hospitals, nursing homes)	Evacuation and Re-entry Routes	Recreation	Consequence/ Economic Impact Rating
			Geographic Area: Mississippi Coast						
NV	Pascagoula: Upper River	N							1
NV	Pascagoula: River	N							1
CSRM	Jackson County - Pascagoula Beach Ecosystem Restoration	U	•••	•	•••	•	•••	•	
NV	Pascagoula: Upper Sound	N							1
NV	Pascagoula: Bayou Casotte	N							1
NV	Pascagoula: Lower Sound	N							1
NV	Pascagoula: Horn Island Pass	N							1
NV	Pascagoula: Bar	N							1
NV	Biloxi: East Access	N							4
CSRM	Harrison County - Deer Island Ecosystem Restoration - I	U							
NV	Biloxi: Lateral	N							4
NV	Biloxi: West Approach	N							4
CSRM	Mississippi Sound - Barrier Islands Ecosystem Restoration Camille Cut	E	x	x	x	x	x	x	
CSRM	Mississippi Sound - Barrier Islands Ecosystem Restoration North Shore, West Ship Island	U	•••	•••	••	••	••	•••	
NV	Gulfport: Bar & Gulf	N							3
CSRM(1)	Harrison County Beach Dunes	U	•••	•••	•••	•••	•••	•••	
NV	Gulfport: Anchorage Basin & Sound	N							3
CSRM	Mississippi Sound - Barrier Islands Ecosystem Restoration Cat Island	E	x	x	x	x	x	x	
CSRM(2)	Hancock County - Bay St Louis Seawall	U							
CSRM	Hancock County Beaches	U	x	x	x	x	x	x	
CSRM	Hancock County - Bayou Caddy Shoreline Protection	U							

Project Type

CSRM = Coastal Storm Risk Management
NV = Navigation
ER = Ecosystem Restoration

Project Reliability

Indicated by background colors:

Green = Good (CSRM, NV)
Yellow = Intermediate (CSRM), Moderate (NV)
Orange = Poor (NV)
Pink = Failing (NV)
Red = Poor (CSRM), Failed (NV)
Purple = Unconstructed (CSRM)

Phase

S = Study
E = Pre-construction engineering and design
A = Awaiting initial construction funds
P = Partial construction funds received
C = Initial construction completed
U = Under Construction
R = Renourishment(s) initiated
N = Navigation maintenance

Extent of Resources at Risk

Coastal Storm Risk Management

••• = Significant
•• = Moderate
• = Minimal
x = None

Navigation

1 = Demonstrated highest economic impact or >10M Tons. Imminent life safety impact.
2 = Demonstrated high economic impact or 5-10M Tons. Probable life safety impact.
3 = Demonstrated moderate economic impact or 1-5M Tons. Possible life safety impact.
4 = Low economic impact or <1M Tons. No life safety impact.
5 = Negligible economics (Recreation Harbors, No commercial Activity). No life safety impact.

For complete definitions see page 7.

Footnotes

(1) Harrison County Beach Dunes Project: Creating rectangular units from planted grasses. Installed in an array across the length of the existing beach. Grasses will capture sand and facilitate natural accrual of dunes. Will limit erosion and provide damage reduction from waves. Dunes will also provide habitat for bird species.

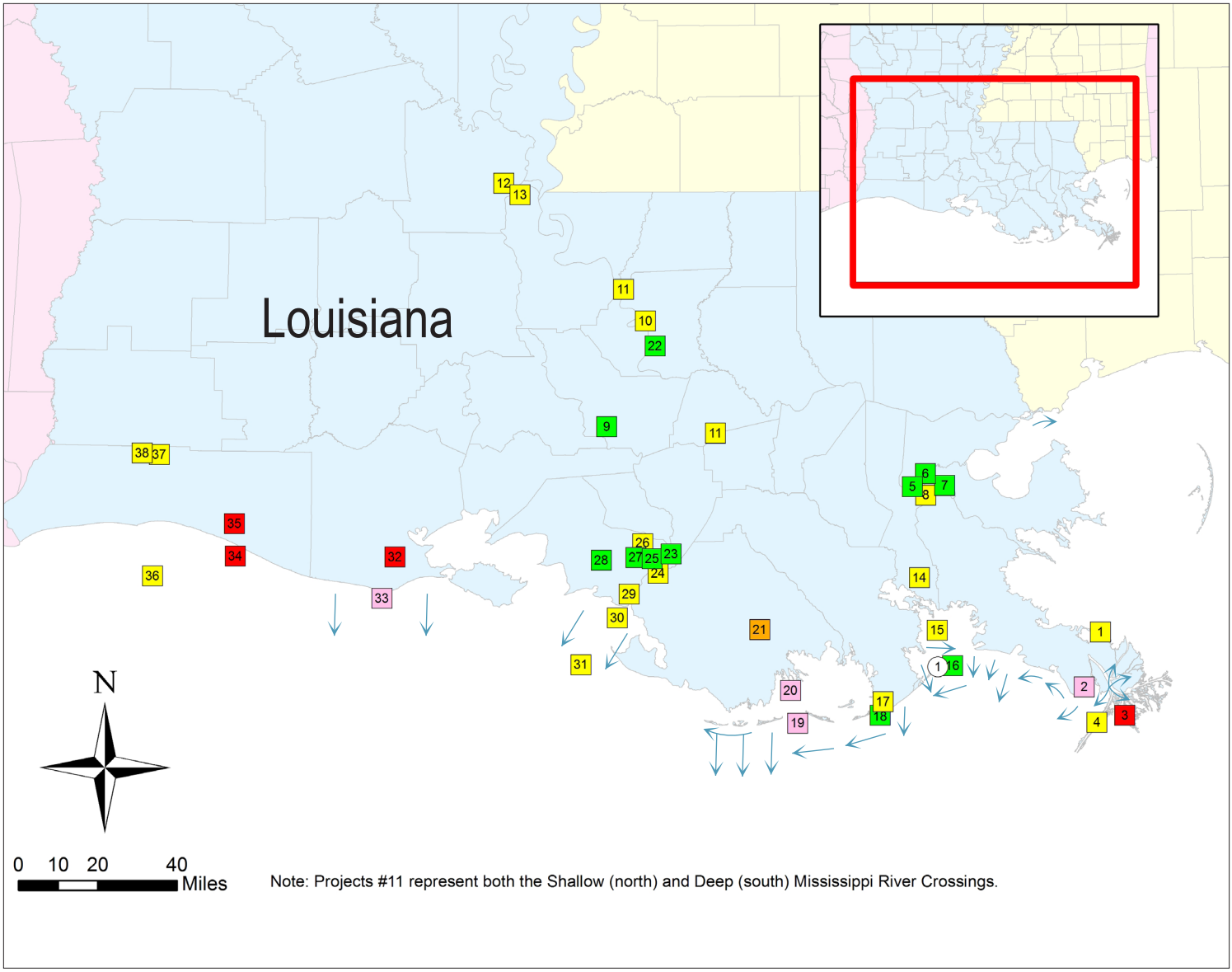
(2) Bay St Louis Seawall: Poured concrete stepped seawall fronting Beach Blvd in Bay St Louis, Ms. Elevation above grade ranges from 2' to 10'. Project parallels road for 1.6 miles. At the toe of seawall, a beach will be installed at 6' above sea level and extend seaward 150' to the bay.

Mississippi

Project Name and Project Reliability	Phase	Estimated Future Federal Costs					
		Total (FY 2013 - FY 2017)	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
		Geographic Area: Mississippi Coast					
Pascagoula: Upper River	N	$0	$0	$0	$0	$0	$0
Pascagoula: River	N	$3,200,000	$0	$1,600,000	$0	$1,600,000	$0
Jackson County - Pascagoula Beach Ecosystem Restoration	U	$0	$0	$0	$0	$0	$0
Pascagoula: Upper Sound	N	$2,600,000	$0	$1,300,000	$0	$0	$1,300,000
Pascagoula: Bayou Casotte	N	$15,000,000	$3,000,000	$3,000,000	$3,000,000	$3,000,000	$3,000,000
Pascagoula: Lower Sound	N	$6,500,000	$1,300,000	$1,300,000	$1,300,000	$1,300,000	$1,300,000
Pascagoula: Horn Island Pass	N	$6,000,000	$0	$3,000,000	$0	$3,000,000	$0
Pascagoula: Bar	N	$6,000,000	$3,000,000	$0	$0	$3,000,000	$0
Biloxi: East Access	N	$5,400,000	$1,800,000	$0	$1,800,000	$0	$1,800,000
Harrison County - Deer Island Ecosystem Restoration - I	U	$4,000,000	$4,000,000	$0	$0	$0	$0
Biloxi: Lateral	N	$900,000	$300,000	$0	$300,000	$0	$300,000
Biloxi: West Approach	N	$900,000	$300,000	$0	$300,000	$0	$300,000
Mississippi Sound - Barrier Islands Ecosystem Restoration Camille Cut	E	$70,000,000	$0	$30,000,000	$40,000,000	$0	$0
Mississippi Sound - Barrier Islands Ecosystem Restoration North Shore, West Ship Island	U	$0	$0	$0	$0	$0	$0
Gulfport: Bar & Gulf	N	$0	$0	$0	$0	$0	$0
Harrison County Beach Dunes	U	$0	$0	$0	$0	$0	$0
Gulfport: Anchorage Basin & Sound	N	$0	$0	$0	$0	$0	$0
Mississippi Sound - Barrier Islands Ecosystem Restoration Cat Island	E	$20,000,000	$20,000,000	$0	$0	$0	$0
Hancock County - Bay St Louis Seawall	U	$0	$0	$0	$0	$0	$0
Hancock County Beaches	U	$0	$0	$0	$0	$0	$0
Hancock County - Bayou Caddy Shoreline Protection	U	$0	$0	$0	$0	$0	$0
Totals		$140,500,000	$33,700,000	$40,200,000	$46,700,000	$11,900,000	$8,000,000

Opportunities for Action

1. **Bayou Caddy Marsh Restoration:** Restoration of 18 acres of eroded shoreline. Effort assists with preservation of 3000 acre marsh. Utilizes containment dike with portion of fill provided from nearby Bayou Caddy navigation project. Coordinated with maintenance of navigation channel.
2. **Pascagoula Beach Ecosystem Restoration Project:** Creation of beach that parallels 1.4 miles of Beach Blvd. Beach install in front of existing seawall will diminish undermining. Extends seaward 150' and utilizes Geotube and containment wall. All fill material provided from nearby west Pascagoula navigation project.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Miles
Note: Projects #11 represent both the Shallow (north) and Deep (south) Mississippi River Crossings.
Direction of sediment flow

Louisiana

PROJECT LEGEND

Key	Type	Project Name
		Geographic Area: Mississippi River Delta
1	NV	Mississippi River: Baptiste Collette
2	NV	Mississippi River: Tiger Pass
3	NV	Mississippi River: South Pass
4	NV	Mississippi River: Southwest Pass
		Geographic Area: Lower Mississippi River
5	NV	GIWW: Algiers Lock Forebay
6	NV	GIWW: Harvey Lock Forebay
7	NV	GIWW: IHNC Lock Forebay
8	NV	Mississippi River: New Orleans Harbor
9	NV	GIWW Alternate Route: Bayou Sorrel Lock
10	NV	Baton Rouge Harbor
11	NV	Mississippi River: Crossings
12	NV	Three Rivers
13	NV	Old River: Lock Forebay & Tailbay
		Geographic Area: Barataria Basin
	NV	Barataria Bay WW: Inland
15	NV	Barataria Bay WW: Bay
	NV	Barataria Bay WW: Bar
(1)	CSRM	Grand Isle and Vicinity
(2)	CSRM	Baritaria Basin Barrier Shoreline Restoration
17	NV	Bayou Lafourche: Inland
	NV	Bayou Lafourche: Jetty/Bar
		Geographic Area: Terrebonne Basin
19	NV	Houma Nav Canal: Bar
(3)	CSRM	Terrebone Basin Barrier Shoreline Restoration
	NV	Houma Nav Canal: Bay
21	NV	Houma Nav Canal: Inland
		Geographic Area: Atchafalaya Basin
	NV	GIWW: Port Allen Lock
23	NV	GIWW: 20 Grand Point
	NV	Bayous Chene, Boeuf & Black
25	NV	GIWW: Vicinity of Bayou Shaffer
	NV	Berwick Bay Harbor
27	NV	GIWW: Mile 99
	NV	GIWW: Wax Lake Crossover
29	NV	Atchafalaya: Horseshoe/Crewboat Cut
	NV	Atchafalaya (Lower): Bay
31	NV	Atchafalaya: Bar

Coastal Storm Risk Management Project Reliability

- = GOOD
- = INTERMEDIATE
- = POOR
- = UNCONSTRUCTED
- = UNASSIGNED

Navigation Project Reliability

- = GOOD
- = MODERATE
- = POOR
- = FAILING
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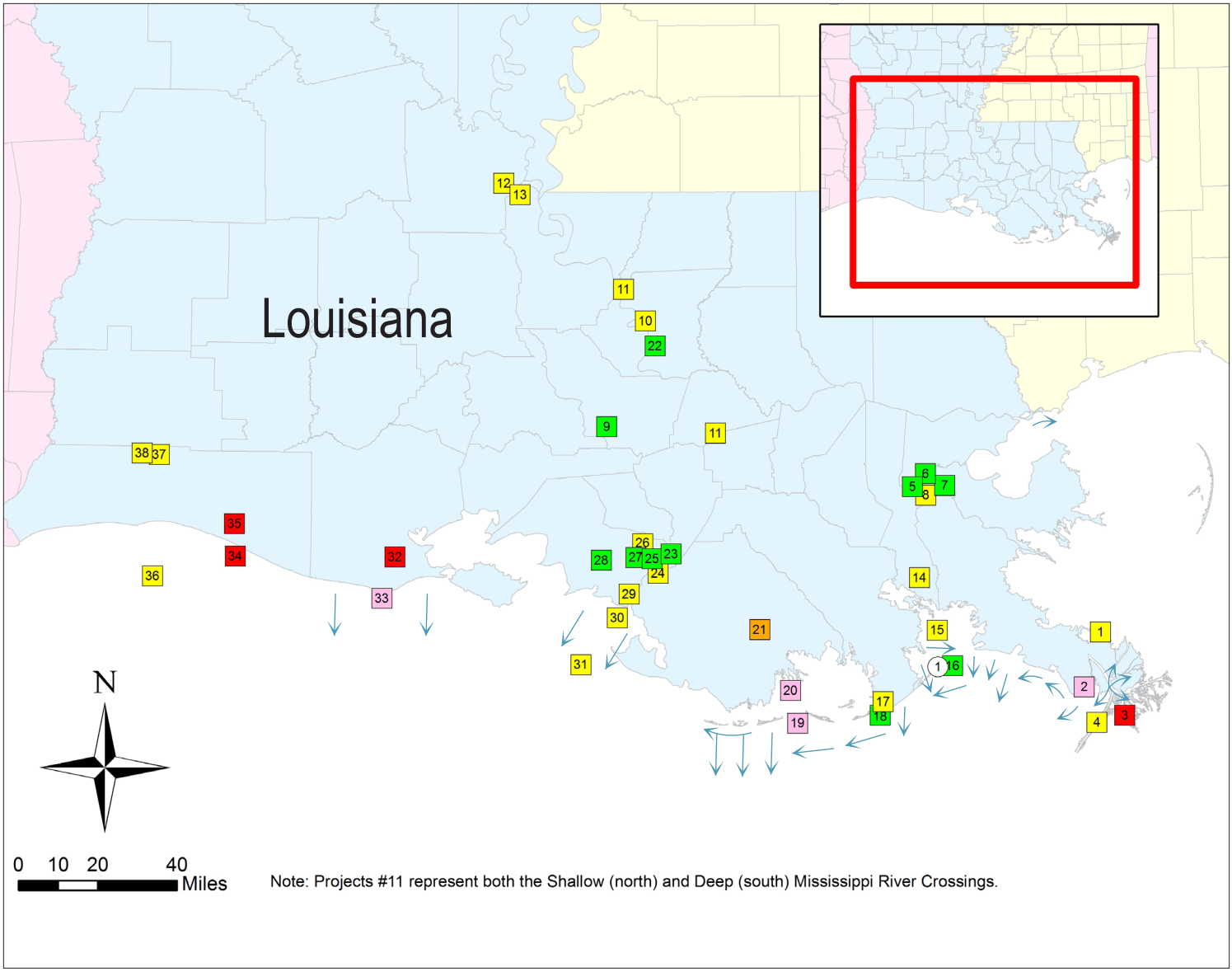
Caminada Headland

Terrebonne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Miles
Note: Projects #11 represent both the Shallow (north) and Deep (south) Mississippi River Crossings.
Direction of sediment flow

Louisiana Continued

Key	Type	Project Name
		Geographic Area: Teche/Vermilion Basin
	NV	Freshwater Bayou: Inland
33	NV	Freshwater Bayou: Lock to Gulf
		Geographic Area: Mermentau Basin
	NV	Mermentau River: Bar
35	NV	Mermentau River: Inland
		Geographic Area: Calcasieu/Sabine Basin
	NV	Calcasieu: Bar
37	NV	Calcasieu: Inland O&M
38	NV	Calcasieu: Inland CG

Coastal Storm Risk Management Project Reliability

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Navigation Project Reliability

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Louisiana

Project Type	Project Name and Project Reliability	Phase	Extent of Resources at Risk: Structures (residential, commercial)	Environment and Habitat	Infrastructure (roads, water/sewer lines, boardwalks, navigation structures)	Critical Facilities (police, fire, schools, hospitals, nursing homes)	Evacuation and Re-entry Routes	Recreation	Consequence/ Economic Impact Rating
	Geographic Area: Mississippi River Delta								
NV	Mississippi River: Baptiste Collette	N							2
NV	Mississippi River: Tiger Pass	N							2
NV	Mississippi River: South Pass	N							3
NV	Mississippi River: Southwest Pass	N							1
	Geographic Area: Lower Mississippi River								
NV	GIWW: Algiers Lock Forebay	N							1
NV	GIWW: Harvey Lock Forebay	N							3
NV	GIWW: IHNC Lock Forebay	N							1
NV	Mississippi River: New Orleans Harbor	N							1
NV	GIWW Alternate Route: Bayou Sorrel Lock	N							1
NV	Baton Rouge Harbor	N							3
NV	Mississippi River: Crossings	N							1
NV	Three Rivers	N							3
NV	Old River: Lock Forebay & Tailbay	N							2
	Geographic Area: Barataria Basin								
NV	Barataria Bay WW: Inland	N							4
NV	Barataria Bay WW: Bay	N							4
NV	Barataria Bay WW: Bar	N							3
CSRM	Grand Isle and Vicinity	C	x	x	x	x	x	x	
CSRM	Baritaria Basin Barrier Shoreline Restoration	P							
NV	Bayou Lafourche: Inland	N							4
NV	Bayou Lafourche: Jetty/Bar	N							1
	Geographic Area: Terrebonne Basin								
NV	Houma Nav Canal: Bar	N							3
CSRM	Terrebone Basin Barrier Shoreline Restoration	P							
NV	Houma Nav Canal: Bay	N							3
NV	Houma Nav Canal: Inland	N							3

Project Type

CSRM = Coastal Storm Risk Management
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Project Reliability

Indicated by background colors:

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Purple = Unconstructed (CSRM)

Phase

S = Study
E = Pre-construction engineering and design
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Extent of Resources at Risk

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For complete definitions see page 7.

Louisiana

Project Name and Project Reliability	Phase	Estimated Future Federal Costs					
		Total (FY 2013 - FY 2017)	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
Geographic Area: Mississippi River Delta							
Mississippi River: Baptiste Collette	N	$37,500,000	$7,000,000	$7,250,000	$7,500,000	$7,750,000	$8,000,000
Mississippi River: Tiger Pass	N	$32,500,000	$6,000,000	$6,250,000	$6,500,000	$6,750,000	$7,000,000
Mississippi River: South Pass	N	$115,850,000	$35,000,000	$0	$38,500,000	$0	$42,350,000
Mississippi River: Southwest Pass	N	$469,650,000	$85,000,000	$89,250,000	$93,700,000	$98,400,000	$103,300,000
Geographic Area: Lower Mississippi River							
GIWW: Algiers Lock Forebay	N	$1,200,000	$200,000	$220,000	$240,000	$260,000	$280,000
GIWW: Harvey Lock Forebay	N	$600,000	$100,000	$110,000	$120,000	$130,000	$140,000
GIWW: IHNC Lock Forebay	N	$3,600,000	$600,000	$660,000	$720,000	$780,000	$840,000
Mississippi River: New Orleans Harbor	N	$24,885,000	$4,500,000	$4,725,000	$4,960,000	$5,200,000	$5,500,000
GIWW Alternate Route: Bayou Sorrel Lock	N	$2,950,000	$200,000	$0	$2,500,000	$0	$250,000
Baton Rouge Harbor	N	$5,356,000	$400,000	$440,000	$484,000	$532,000	$3,500,000
Mississippi River: Crossings	N	$359,350,000	$65,000,000	$68,250,000	$71,700,000	$75,300,000	$79,100,000
Three Rivers	N	$7,326,000	$1,200,000	$1,320,000	$1,452,000	$1,597,000	$1,757,000
Old River: Lock Forebay & Tailbay	N	$6,015,000	$1,133,000	$1,167,000	$1,202,000	$1,238,000	$1,275,000
Geographic Area: Barataria Basin							
Barataria Bay WW: Inland	N	$7,000,000	$0	$0	$0	$7,000,000	$0
Barataria Bay WW: Bay	N	$7,000,000	$0	$0	$0	$0	$7,000,000
Barataria Bay WW: Bar	N	$7,250,000	$0	$3,500,000	$0	$0	$3,750,000
Grand Isle and Vicinity	C	$6,375,000	$1,275,000	$1,275,000	$1,275,000	$1,275,000	$1,275,000
Baritaria Basin Barrier Shoreline Restoration	P	$0	$0	$0	$0	$0	$0
Bayou Lafourche: Inland	N	$6,500,000	$6,500,000	$0	$0	$0	$0
Bayou Lafourche: Jetty/Bar	N	$14,000,000	$0	$7,500,000	$0	$6,500,000	$0
Geographic Area: Terrebonne Basin							
Houma Nav Canal: Bar	N	$22,500,000	$8,000,000	$0	$7,000,000	$0	$7,500,000
Terrebone Basin Barrier Shoreline Restoration	P	$0	$0	$0	$0	$0	$0
Houma Nav Canal: Bay	N	$22,000,000	$8,500,000	$0	$6,500,000	$0	$7,000,000
Houma Nav Canal: Inland	N	$6,500,000	$0	$6,500,000	$0	$0	$0

Louisiana

Project Type	Project Name and Project Reliability	Phase	Extent of Resources at Risk (Cont.)						
			Structures (residential, commercial)	Environment and Habitat	Infrastructure (roads, water/sewer lines, boardwalks, navigation structures)	Critical Facilities (police, fire, schools, hospitals, nursing homes)	Evacuation and Re-entry Routes	Recreation	Consequence/ Economic Impact Rating
Geographic Area: Atchafalaya Basin									
NV	GIWW: Port Allen Lock	N							1
NV	GIWW: 20 Grand Point	N							1
NV	Bayous Chene, Boeuf & Black	N							3
NV	GIWW: Vicinity of Bayou Shaffer	N							1
NV	Berwick Bay Harbor	N							3
NV	GIWW: Mile 99	N							1
NV	GIWW: Wax Lake Crossover	N							1
NV	Atchafalaya: Horseshoe/Crewboat Cut	N							3
NV	Atchafalaya (Lower): Bay	N							3
NV	Atchafalaya: Bar	N							3
Geographic Area: Teche/Vermilion Basin									
NV	Freshwater Bayou: Inland	N							2
NV	Freshwater Bayou: Lock to Gulf	N							2
Geographic Area: Mermentau Basin									
NV	Mermentau River: Bar	N							3
NV	Mermentau River: Inland	N							3
Geographic Area: Calcasieu/Sabine Basin									
NV	Calcasieu: Bar	N							1
NV	Calcasieu: Inland O&M	N							1
NV	Calcasieu: Inland CG	N							1

Project Type

CSRM = Coastal Storm Risk Management
NV = Navigation
ER = Ecosystem Restoration

Project Reliability

Indicated by background colors:

Green = Good (CSRM, NV)
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Orange = Poor (NV)
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Red = Poor (CSRM), Failed (NV)
Purple = Unconstructed (CSRM)

Phase

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Extent of Resources at Risk

Coastal Storm Risk Management

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Navigation

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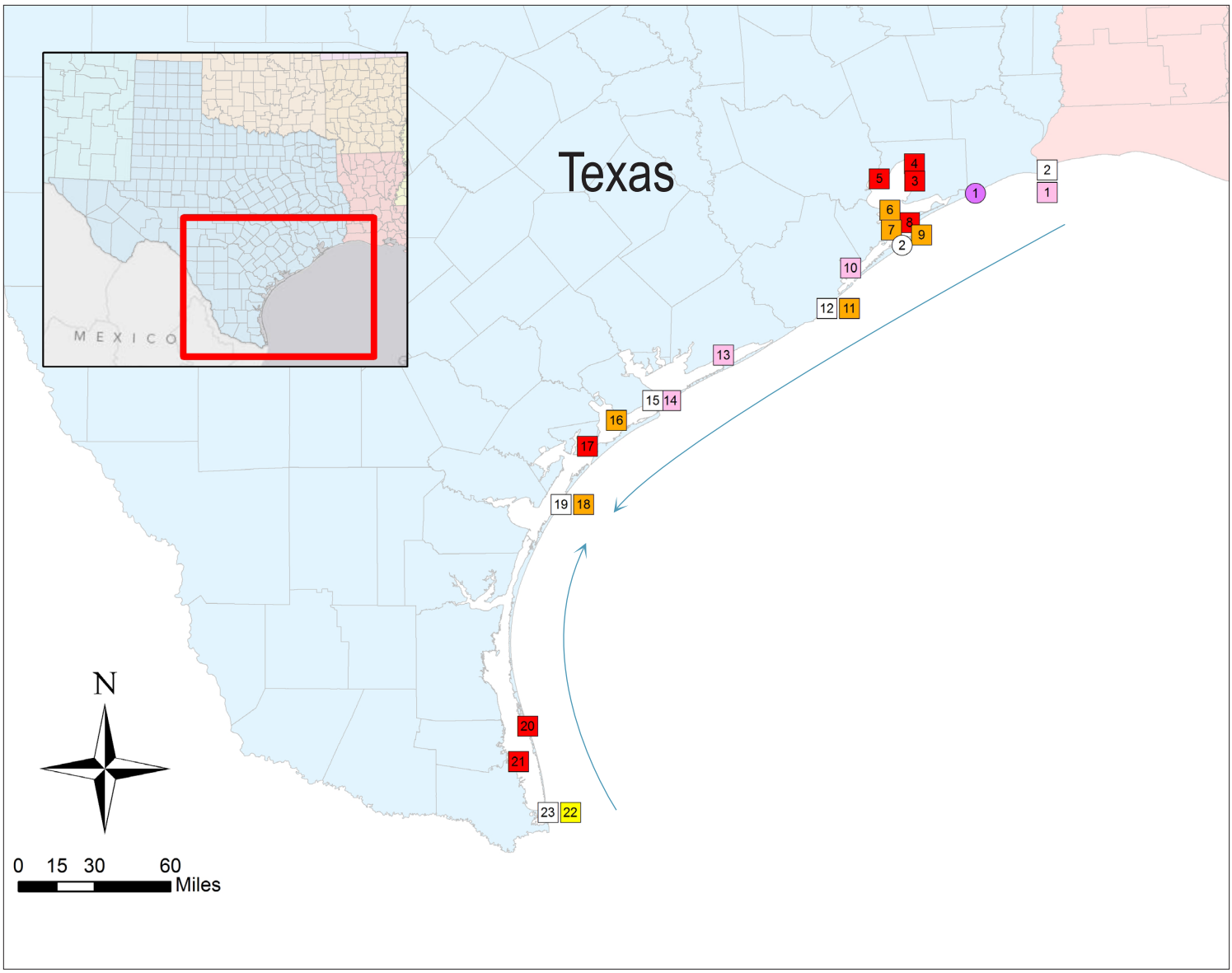
For complete definitions see page 7.

Louisiana

Project Name and Project Reliability	Phase	Estimated Future Federal Costs (Cont.)					
		Total (FY 2013 - FY 2017)	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
Geographic Area: Atchafalaya Basin							
GIWW: Port Allen Lock	N	$4,800,000	$800,000	$880,000	$960,000	$1,040,000	$1,120,000
GIWW: 20 Grand Point	N	$2,400,000	$400,000	$440,000	$480,000	$520,000	$560,000
Bayous Chene, Boeuf & Black	N	$13,400,000	$0	$0	$0	$2,000,000	$11,400,000
GIWW: Vicinity of Bayou Shaffer	N	$230,000	$0	$110,000	$0	$120,000	$0
Berwick Bay Harbor	N	$40,292,000	$6,600,000	$7,260,000	$7,986,000	$8,784,000	$9,662,000
GIWW: Mile 99	N	$3,000,000	$500,000	$550,000	$600,000	$650,000	$700,000
GIWW: Wax Lake Crossover	N	$6,000,000	$1,000,000	$1,100,000	$1,200,000	$1,300,000	$1,400,000
Atchafalaya: Horseshoe/Crewboat Cut	N	$23,244,000	$7,000,000	$3,500,000	$3,850,000	$4,235,000	$4,659,000
Atchafalaya (Lower): Bay	N	$74,781,000	$13,200,000	$14,520,000	$14,520,000	$15,972,000	$16,569,000
Atchafalaya: Bar	N	$114,181,000	$18,700,000	$20,570,000	$22,627,000	$24,897,000	$27,387,000
Geographic Area: Teche/Vermilion Basin							
Freshwater Bayou: Inland	N	$30,180,000	$80,000	$100,000	$10,000,000	$10,000,000	$10,000,000
Freshwater Bayou: Lock to Gulf	N	$9,120,000	$30,000	$5,000,000	$30,000	$60,000	$4,000,000
Geographic Area: Mermentau Basin							
Mermentau River: Bar	N	$10,110,000	$30,000	$5,000,000	$30,000	$50,000	$5,000,000
Mermentau River: Inland	N	$30,110,000	$30,000	$80,000	$10,000,000	$10,000,000	$10,000,000
Geographic Area: Calcasieu/Sabine Basin							
Calcasieu: Bar	N	$33,466,000	$6,373,000	$6,500,000	$6,631,000	$6,763,000	$7,199,000
Calcasieu: Inland O&M	N	$282,649,000	$80,699,000	$76,096,000	$82,291,000	$13,918,000	$29,645,000
Calcasieu: Inland CG	N	$50,070,000	$14,151,000	$3,988,000	$2,813,000	$29,118,000	$0
Totals		$1,893,940,000	$380,201,000	$344,111,000	$408,371,000	$342,139,000	$419,118,000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Direction of sediment flow

Texas

PROJECT LEGEND

Key	Type	Project Name
		Geographic Area: Texas Gulf Coast - North Region
1	NV	Sabine-Neches Waterway (O&M)
2	NV	Sabine-Neches Waterway (GI)
1	CSRM	Sabine Pass to Galveston Bay
3	NV	Double Bayou (O&M)
4	NV	Trinity River & Tribs. (O&M)
5	NV	Cedar Bayou (O&M)
6	NV	Houston Ship Channel (O&M)
7	NV	Texas City Channel (O&M)
8	NV	GIWW, Channel to Port Bolivar (O&M)
9	NV	Galveston Harbor & Channel (O&M)
2	CSRM	Galveston Seawall
10	NV	GIWW, Chocolate Bayou (O&M)
11	NV	Freeport Harbor (O&M)
12	NV	Freeport Harbor (GI)
13	NV	GIWW, Mouth of Colorado River (O&M)
14	NV	Matagorda Ship Channel (O&M)
15	NV	GIWW, Port O´Connor to Corpus Christi (GI)
16	NV	GIWW, Channel to Victoria (O&M)
		Geographic Area: Texas Gulf Coast - North Region
17	NV	Gulf Intracoastal Waterway (O&M)
		Geographic Area: Texas Gulf Coast - South Region
18	NV	Corpus Christi Ship Channel (O&M)
19	NV	Corpus Christi (GI)
20	NV	GIWW, Channel to Port Mansfield (O&M)
21	NV	GIWW, Channel to Harlingen (O&M)
22	NV	Brazos Island Harbor (O&M)
23	NV	Brazos Island Harbor (GI)

Coastal Storm Risk Management Project Reliability

- = GOOD
- = INTERMEDIATE
- = POOR
- = UNCONSTRUCTED
- = UNASSIGNED

Navigation Project Reliability

- = GOOD
- = MODERATE
- = POOR
- = FAILING
- = FAILED
- = UNASSIGNED

△ = INLET ONLY, NOT A FEDERAL NAVIGATION PROJECT

Brazos Island Harbor

Matagorda

Texas

Project Type	Project Name and Project Reliability	Phase	Extent of Resources at Risk: Structures (residential, commercial)	Environment and Habitat	Infrastructure (roads, water/sewer lines, boardwalks, navigation structures)	Critical Facilities (police, fire, schools, hospitals, nursing homes)	Evacuation and Re-entry Routes	Recreation	Consequence/ Economic Impact Rating
Geographic Area: Texas Gulf Coast - North Region									
NV	Sabine-Neches Waterway (O&M)	N							1
NV	Sabine-Neches Waterway (GI)	N							1
CSRM	Sabine Pass to Galveston Bay	S	x	x	x	x	x	x	
NV	Double Bayou (O&M)	N							4
NV	Trinity River & Tribs. (O&M)	N							4
NV	Cedar Bayou (O&M)	N							2
NV	Houston Ship Channel (O&M)	N							1
NV	Texas City Channel (O&M)	N							1
NV	GIWW, Channel to Port Bolivar (O&M)	N							2
NV	Galveston Harbor & Channel (O&M)	N							1
CSRM	Galveston Seawall	C	x	x	x	x	x	x	
NV	GIWW, Chocolate Bayou (O&M)	N							2
NV	Freeport Harbor (O&M)	N							1
NV	Freeport Harbor (GI)	N							1
NV	GIWW, Mouth of Colorado River (O&M)	N							3
NV	Matagorda Ship Channel (O&M)	N							2
NV	GIWW, Port O´Connor to Corpus Christi (GI)	N							4
NV	GIWW, Channel to Victoria (O&M)	N							2
Geographic Area: TX Statewide									
NV	Gulf Intracoastal Waterway (O&M)	N							1
Geographic Area: Texas Gulf Coast - South Region									
NV	Corpus Christi Ship Channel (O&M)	N							1
NV	Corpus Christi (GI)	N							1
NV	GIWW, Channel to Port Mansfield (O&M)	N							5
NV	GIWW, Channel to Harlingen (O&M)	N							4
NV	Brazos Island Harbor (O&M)	N							3
NV	Brazos Island Harbor (GI)	N							3

Project Type

CSRM = Coastal Storm Risk Management
NV = Navigation
ER = Ecosystem Restoration

Project Reliability

Indicated by background colors:

Green = Good (CSRM, NV)
Yellow = Intermediate (CSRM), Moderate (NV)
Orange = Poor (NV)
Pink = Failing (NV)
Red = Poor (CSRM), Failed (NV)
Purple = Unconstructed (CSRM)

Phase

S = Study
E = Pre-construction engineering and design
A = Awaiting initial construction funds
P = Partial construction funds received
C = Initial construction completed
U = Under Construction
R = Renourishment(s) initiated
N = Navigation maintenance

Extent of Resources at Risk

Coastal Storm Risk Management

••• = Significant
•• = Moderate
• = Minimal
x = None

Navigation

1 = Demonstrated highest economic impact or >10M Tons. Imminent life safety impact.
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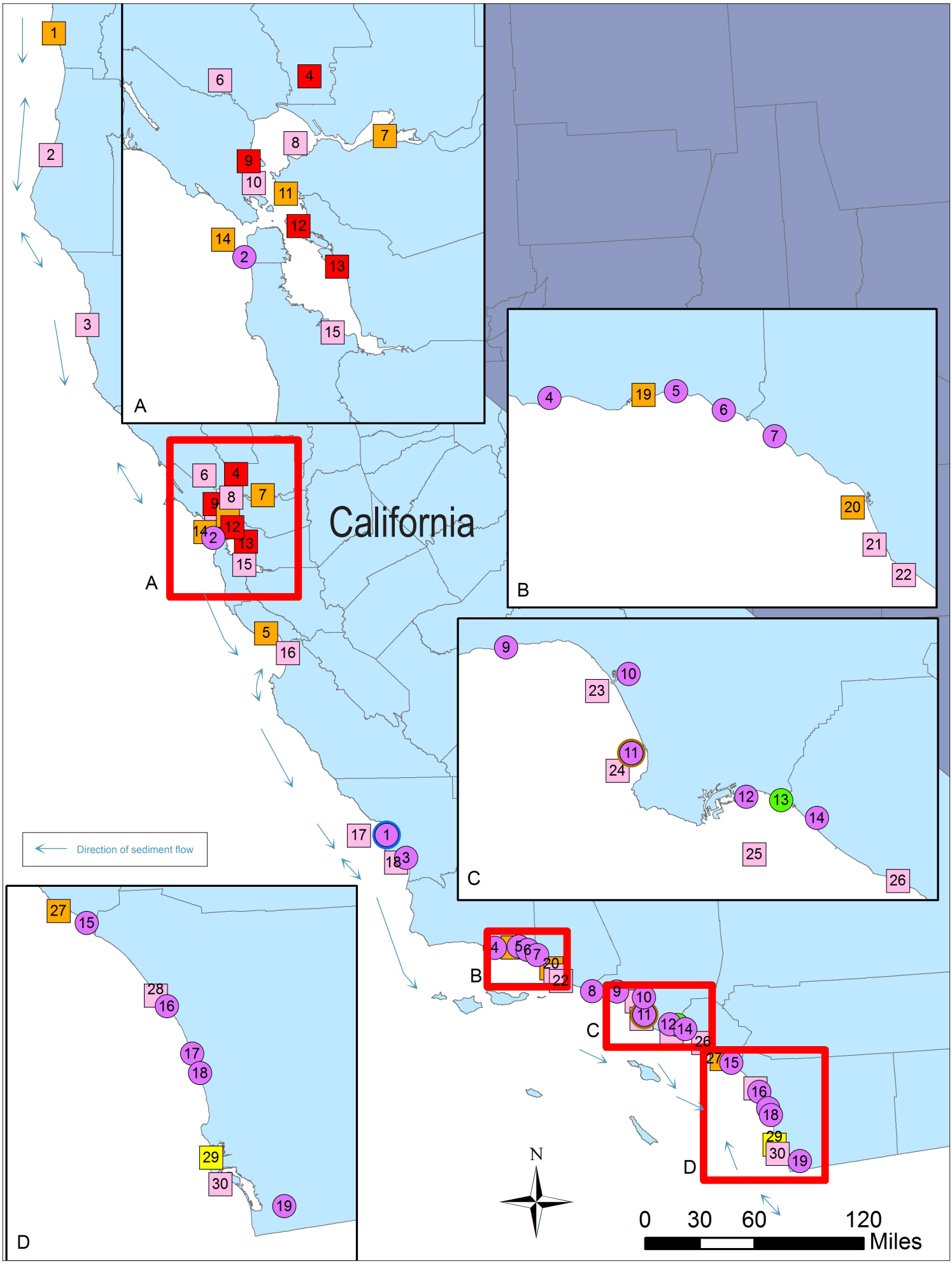
5 = Negligible economics (Recreation Harbors, No commercial Activity). No life safety impact.

For complete definitions see page 7.

Texas

Project Name and Project Reliability	Phase	Estimated Future Federal Costs					
		Total (FY 2013 - FY 2017)	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
Geographic Area: Texas Gulf Coast - North Region							
Sabine-Neches Waterway (O&M)	N	$132,100,000	$19,600,000	$24,500,000	$39,000,000	$20,000,000	$29,000,000
Sabine-Neches Waterway (GI)	N	$2,640,000	$0	$100,000	$2,540,000	$0	$0
Sabine Pass to Galveston Bay	S	$1,125,000	$200,000	$925,000	$0	$0	$0
Double Bayou (O&M)	N	$9,027,000	$227,000	$500,000	$3,100,000	$2,000,000	$3,200,000
Trinity River & Tribs. (O&M)	N	$17,400,000	$3,400,000	$3,500,000	$3,000,000	$3,000,000	$4,500,000
Cedar Bayou (O&M)	N	$22,200,000	$4,700,000	$100,000	$7,800,000	$1,400,000	$8,200,000
Houston Ship Channel (O&M)	N	$230,800,000	$52,000,000	$49,000,000	$44,600,000	$26,800,000	$58,400,000
Texas City Channel (O&M)	N	$21,000,000	$2,200,000	$4,300,000	$6,000,000	$2,500,000	$6,000,000
GIWW, Channel to Port Bolivar (O&M)	N	$9,900,000	$1,200,000	$1,600,000	$2,100,000	$2,400,000	$2,600,000
Galveston Harbor & Channel (O&M)	N	$78,000,000	$9,900,000	$22,000,000	$11,800,000	$22,400,000	$11,900,000
Galveston Seawall	C	$0	$0	$0	$0	$0	$0
GIWW, Chocolate Bayou (O&M)	N	$25,000,000	$5,700,000	$7,400,000	$4,900,000	$1,000,000	$6,000,000
Freeport Harbor (O&M)	N	$56,900,000	$17,900,000	$8,600,000	$11,700,000	$10,600,000	$8,100,000
Freeport Harbor (GI)	N	$2,518,000	$0	$600,000	$1,918,000	$0	$0
GIWW, Mouth of Colorado River (O&M)	N	$20,900,000	$4,000,000	$2,900,000	$4,000,000	$4,000,000	$6,000,000
Matagorda Ship Channel (O&M)	N	$66,500,000	$17,500,000	$11,000,000	$16,000,000	$10,000,000	$12,000,000
GIWW, Port O´Connor to Corpus Christi (GI)	N	$550,000	$0	$550,000	$0	$0	$0
GIWW, Channel to Victoria (O&M)	N	$36,200,000	$6,900,000	$4,500,000	$9,200,000	$9,000,000	$6,600,000
Geographic Area: TX Statewide							
Gulf Intracoastal Waterway (O&M)	N	$255,900,000	$64,000,000	$50,200,000	$34,900,000	$55,900,000	$50,900,000
Geographic Area: Texas Gulf Coast - South Region							
Corpus Christi Ship Channel (O&M)	N	$29,700,000	$8,000,000	$4,500,000	$6,100,000	$4,700,000	$6,400,000
Corpus Christi (GI)	N	$300,000	$0	$300,000	$0	$0	$0
GIWW, Channel to Port Mansfield (O&M)	N	$23,300,000	$5,700,000	$6,000,000	$4,200,000	$2,600,000	$4,800,000
GIWW, Channel to Harlingen (O&M)	N	$15,267,000	$4,125,000	$4,200,000	$850,000	$5,200,000	$892,000
Brazos Island Harbor (O&M)	N	$46,000,000	$12,900,000	$10,200,000	$6,900,000	$10,000,000	$6,000,000
Brazos Island Harbor (GI)	N	$867,000	$726,000	$141,000	$0	$0	$0
Totals		$1,104,094,000	$240,878,000	$217,616,000	$220,608,000	$193,500,000	$231,492,000



Direction of sediment flow

California

PROJECT LEGEND

Key	Type	Project Name
		Geographic Area: CA Statewide (Los Angeles District)
1	CSRM	California Coastal Sediment Master Plan
		Geographic Area: North Coast - CA (San Francisco District)
1	NV	Crescent City Harbor
2	NV	Humboldt Harbor
3	NV	Noyo Harbor
4	NV	Napa River
5	NV	Santa Cruz Harbor
		Geographic Area: San Francisco Bay Region (San Francisco District)
6	NV	Petaluma River
7	NV	Suisun Bay Channel
8	NV	San Pablo Bay and Mare Island Strait
9	NV	San Rafael Creek
10	NV	Larkspur Ferry Channel
11	NV	Richmond Harbor
12	NV	Oakland Harbor
13	NV	Jack D. Maltester Channel (San Leandro Marina)
14	NV	San Francisco Harbor
2	CSRM	Ocean Beach
15	NV	Redwood City Harbor
		Geographic Area: Central Coast - CA (San Francisco District)
16	NV	Moss Landing Harbor
		Geographic Area: South Central - CA (Los Angeles District)
17	NV	Morro Bay Harbor
18	NV	Port San Luis
3	CSRM	Pismo Beach, CAP 103
4	CSRM	Goleta Beach
19	NV	Santa Barbara Harbor
5	CSRM	Ventura and Santa Barbara Counties Shoreline
6	CSRM	Carpinteria Shoreline Study
7	CSRM	Oil Piers Demonstration Project, CAP 103 (2038)
20	NV	Ventura Harbor
21	NV	Channel Islands Harbor
22	NV	Port Hueneme

Coastal Storm Risk Management Project Reliability

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Navigation Project Reliability

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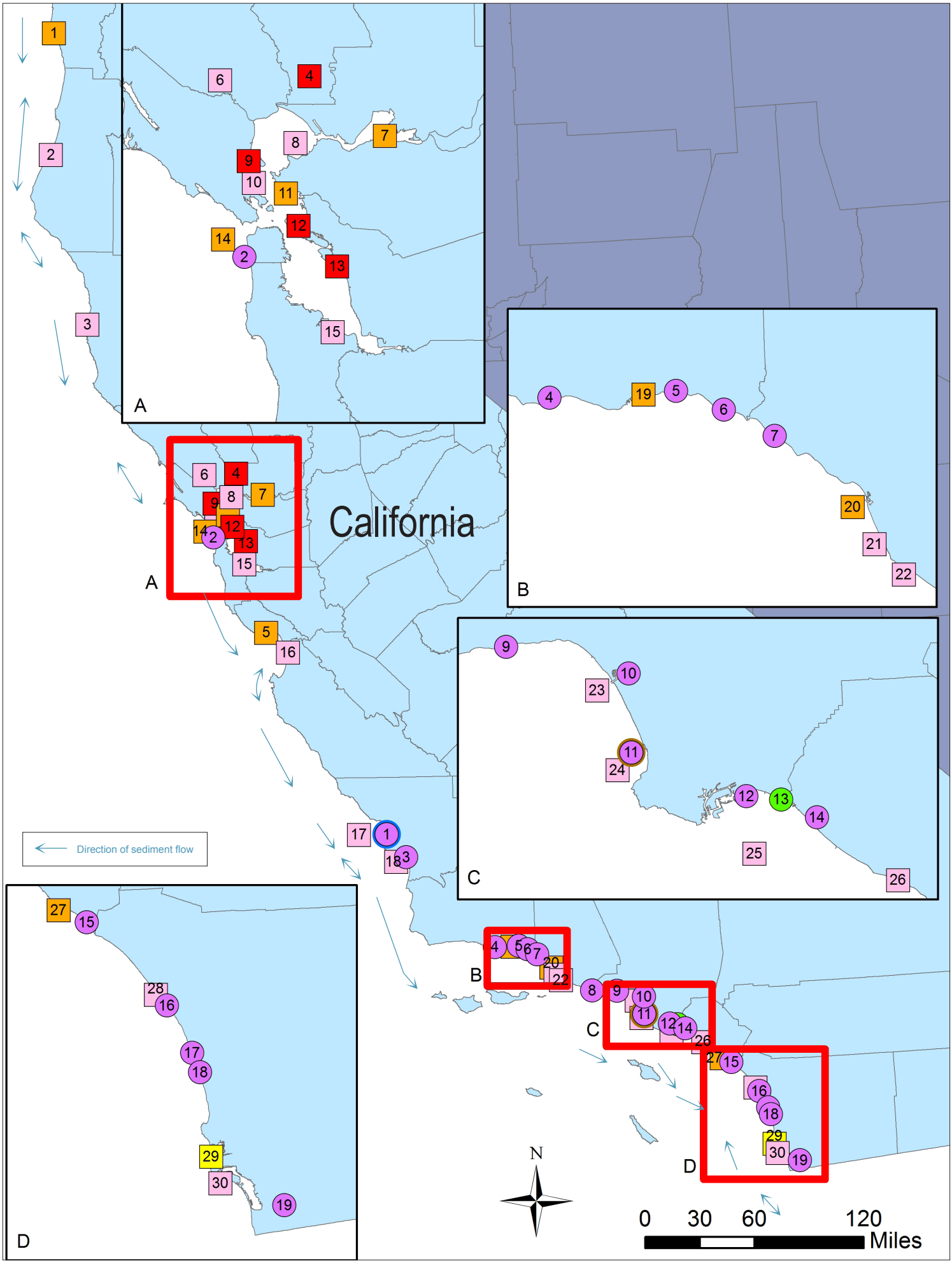
□ ○ = STATEWIDE PROJECTS OUTLINED

□ ○ = REGIONAL PROJECTS OUTLINED

San Clemente

Santa Cruz Harbor



Direction of sediment flow

California Continued

PROJECT LEGEND

Key	Type	Project Name
		Geographic Area: South Coast - CA (Los Angeles District)
8	CSRM	Nicholas Canyon, CAP 103
9	CSRM	Malibu Creek Watershed Ecosystem Restoration
10	CSRM	Ballona Creek Ecosystem Restoration
23	NV	Marina del Ray Harbor
11	CSRM	Coast of California, South Coast Region
24	NV	Redondo Beach - King Harbor
12	CSRM	East San Pedro Bay Ecosystem Restoration
13	CSRM	Surfside/Sunset
25	NV	Los Angeles - Long Beach Harbor
14	CSRM	Huntington Harbour (Anaheim Second Entrance Channel)
26	NV	Newport Harbor
27	NV	Dana Point Harbor
15	CSRM	San Clemente Shoreline
		Geographic Area: San Diego (Los Angeles District)
28	NV	Oceanside Harbor
16	CSRM	San Diego County Shoreline
17	CSRM	Solana and Encinitas Beach
18	CSRM	Fletcher Cove, Solana Beach
29	NV	Mission Bay
30	NV	San Diego Harbor
19	CSRM	Imperial Beach, Silver Strand Shoreline

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Surfside/Sunset Before

Surfside/Sunset After

California

Project Type	Project Name and Project Reliability	Phase	Extent of Resources at Risk: Structures (residential, commercial)	Environment and Habitat	Infrastructure (roads, water/sewer lines, boardwalks, navigation structures)	Critical Facilities (police, fire, schools, hospitals, nursing homes)	Evacuation and Re-entry Routes	Recreation	Consequence/ Economic Impact Rating
CSRM	California Coastal Sediment Master Plan	S							
	Geographic Area: North Coast - CA (San Francisco District)								
NV	Crescent City Harbor	N							3
NV	Humboldt Harbor	N							1
NV	Noyo Harbor	N							3
NV	Napa River	N							5
NV	Santa Cruz Harbor	N							2
	Geographic Area: San Francisco Bay Region (San Francisco District)								
NV	Petaluma River	N							3
NV	Suisun Bay Channel	N							2
NV	San Pablo Bay and Mare Island Strait	N							1
NV	San Rafael Creek	N							5
NV	Larkspur Ferry Channel	N							3
NV	Richmond Harbor	N							1
NV	Oakland Harbor	N							1
NV	Jack D. Maltester Channel (San Leandro Marina)	N							3
NV	San Francisco Harbor	N							1
CSRM	Ocean Beach	S	•	•	•••	•	••	•••	
NV	Redwood City Harbor	N							1
	Geographic Area: Central Coast - CA (San Francisco District)								
NV	Moss Landing Harbor	N							3
	Geographic Area: South Central - CA (Los Angeles District)								
NV	Morro Bay Harbor	N							
NV	Port San Luis	N							
CSRM	Pismo Beach, CAP 103	S	••	••	•••	•••	•••	•••	
CSRM	Goleta Beach	S							
NV	Santa Barbara Harbor	N							
CSRM	Ventura and Santa Barbara Counties Shoreline	S	••	••	••	••	•••	•••	
CSRM	Carpinteria Shoreline Study	S							
CSRM	Oil Piers Demonstration Project, CAP 103 (2038)	E	••	••	••	••	•••	•••	
NV	Ventura Harbor	N							
NV	Channel Islands Harbor	N							
NV	Port Hueneme	N							

Project Type

CSRM = Coastal Storm Risk Management
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Project Reliability

Indicated by background colors:

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Pink = Failing (NV)
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Purple = Unconstructed (CSRM)

Phase

S = Study
E = Pre-construction engineering and design
A = Awaiting initial construction funds
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R = Renourishment(s) initiated
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Extent of Resources at Risk

Coastal Storm Risk Management

••• = Significant
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Navigation

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For complete definitions see page 7.

California

Project Name and Project Reliability	Phase	Estimated Future Federal Costs					
		Total (FY 2013 - FY 2017)	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
California Coastal Sediment Master Plan	S	$0	$0	$0	$0	$0	$0
Geographic Area: North Coast - CA (San Francisco District)							
Crescent City Harbor	N	$11,185,000	$3,510,000	$0	$3,724,000	$0	$3,951,000
Humboldt Harbor	N	$34,478,000	$9,761,000	$5,908,000	$6,085,000	$6,268,000	$6,456,000
Noyo Harbor	N	$7,837,000	$2,410,000	$0	$2,633,000	$0	$2,794,000
Napa River	N	$3,800,000	$3,800,000	$0	$0	$0	$0
Santa Cruz Harbor	N	$22,247,000	$700,000	$5,150,000	$5,305,000	$5,464,000	$5,628,000
Geographic Area: San Francisco Bay Region (San Francisco District)							
Petaluma River	N	$15,961,000	$6,970,000	$0	$0	$4,429,000	$4,562,000
Suisun Bay Channel	N	$48,396,000	$11,580,000	$8,800,000	$9,064,000	$9,336,000	$9,616,000
San Pablo Bay and Mare Island Strait	N	$21,231,000	$2,500,000	$4,477,000	$4,611,000	$4,750,000	$4,893,000
San Rafael Creek	N	$22,773,000	$11,218,000	$0	$0	$11,555,000	$0
Larkspur Ferry Channel	N	$17,235,000	$5,300,000	$0	$5,791,000	$0	$6,144,000
Richmond Harbor	N	$57,977,000	$10,920,000	$11,248,000	$11,585,000	$11,933,000	$12,291,000
Oakland Harbor	N	$108,045,000	$38,525,000	$16,375,000	$17,194,000	$17,710,000	$18,241,000
Jack D. Maltester Channel (San Leandro Marina)	N	$6,717,000	$3,160,000	$0	$0	$3,557,000	$0
San Francisco Harbor	N	$27,434,000	$13,640,000	$3,297,000	$3,396,000	$3,498,000	$3,603,000
Ocean Beach	S	$5,000,000	$4,250,000	$300,000	$150,000	$150,000	$150,000
Redwood City Harbor	N	$41,994,000	$7,765,000	$8,182,000	$8,427,000	$8,680,000	$8,940,000
Geographic Area: Central Coast - CA (San Francisco District)							
Moss Landing Harbor	N	$7,407,000	$3,485,000	$0	$0	$3,922,000	$0
Totals (San Francisco District)		$459,717,000	$139,494,000	$63,737,000	$77,965,000	$91,252,000	$87,269,000
Geographic Area: South Central - CA (Los Angeles District)							
Morro Bay Harbor	N	$0	$0	$0	$0	$0	$0
Port San Luis	N	$0	$0	$0	$0	$0	$0
Pismo Beach, CAP 103	S	$2,500,000	$2,500,000	$0	$0	$0	$0
Goleta Beach	S	$0	$0	$0	$0	$0	$0
Santa Barbara Harbor	N	$0	$0	$0	$0	$0	$0
Ventura and Santa Barbara Counties Shoreline	S	$0	$0	$0	$0	$0	$0
Carpinteria Shoreline Study	S	$0	$0	$0	$0	$0	$0
Oil Piers Demonstration Project, CAP 103 (2038)	E	$5,300,000	$5,000,000	$100,000	$100,000	$100,000	$0
Ventura Harbor	N	$0	$0	$0	$0	$0	$0
Channel Islands Harbor	N	$0	$0	$0	$0	$0	$0
Port Hueneme	N	$0	$0	$0	$0	$0	$0

California

Project Type	Project Name and Project Reliability	Phase	Extent of Resources at Risk (Cont.)						
			Structures (residential, commercial)	**Environment and Habitat**	**Infrastructure** (roads, water/sewer lines, boardwalks, navigation structures)	**Critical Facilities** (police, fire, schools, hospitals, nursing homes)	**Evacuation and Re-entry Routes**	**Recreation**	**Consequence/ Economic Impact Rating**
	Geographic Area: South Coast - CA (Los Angeles District)								
CSRM	Nicholas Canyon, CAP 103	S	••	••	••	••	••	•••	
CSRM	Malibu Creek Watershed Ecosystem Restoration	S	••	•••	••	•	••	••	
CSRM	Ballona Creek Ecosystem Restoration	S	•••	•••	•••	••	•••	•••	
NV	Marina del Ray Harbor	N							
CSRM	Coast of California, South Coast Region	S	•••	••	•••	•••	•••	•••	
NV	Redondo Beach - King Harbor	N							
CSRM	East San Pedro Bay Ecosystem Restoration	S							
CSRM	Surfside/Sunset	C	•••	••	•••	•	•••	•••	
NV	Los Angeles - Long Beach Harbor	N							
CSRM	Huntington Harbour (Anaheim Second Entrance Channel)	S	•••	••	•••	•••	•••	•••	
NV	Newport Harbor	N							
NV	Dana Point Harbor	N							
CSRM	San Clemente Shoreline	S	•••	••	•••	•	•••	•••	
	Geographic Area: San Diego (Los Angeles District)								
NV	Oceanside Harbor	S	•••	••	•••	•	•••	•••	
CSRM	San Diego County Shoreline	S	•••	••	•••	•	•••	•••	
CSRM	Solana and Encinitas Beach	S	•••	•••	•••	•••	•••	•••	
CSRM	Fletcher Cove, Solana Beach	N							
NV	Mission Bay	N							
NV	San Diego Harbor	C							
CSRM	Imperial Beach, Silver Strand Shoreline	N							

Project Type

CSRM = Coastal Storm Risk Management
NV = Navigation
ER = Ecosystem Restoration

Project Reliability

Indicated by background colors:

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Phase

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E = Pre-construction engineering and design
A = Awaiting initial construction funds
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Extent of Resources at Risk

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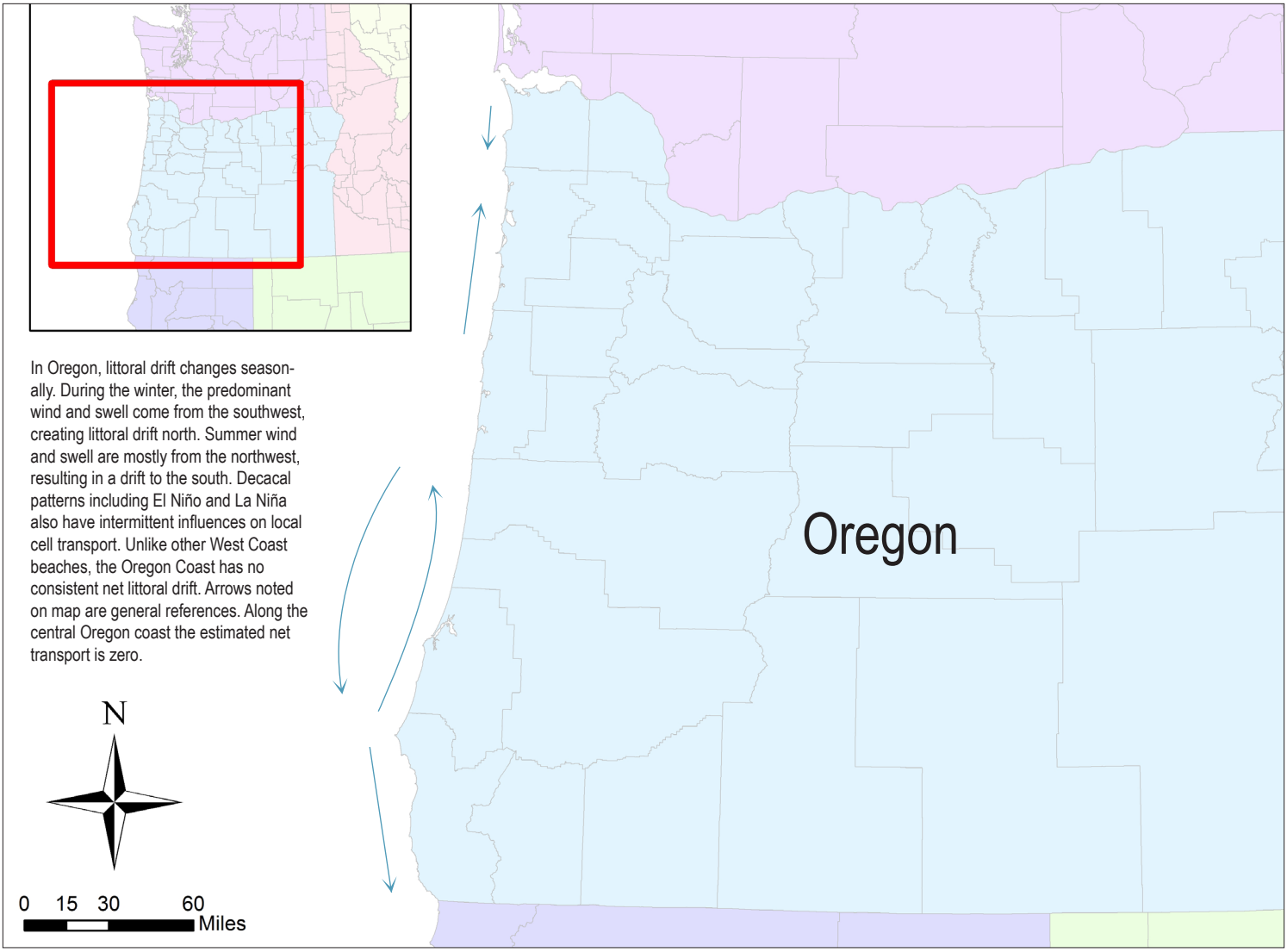
For complete definitions see page 7.

Footnotes

(1) Totals represents the total estimated future federal costs for the entire state of California (San Francisco and Los Angeles Districts combined)

California

Project Name and Project Reliability	Phase	Estimated Future Federal Costs (Cont.)					
		Total (FY 2013 - FY 2017)	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
Geographic Area: South Coast - CA (Los Angeles District)							
Nicholas Canyon, CAP 103	S	$0	$0	$0	$0	$0	$0
Malibu Creek Watershed Ecosystem Restoration	S	$41,500,000	$0	$0	$1,500,000	$20,000,000	$20,000,000
Ballona Creek Ecosystem Restoration	S	$0	$0	$0	$0	$0	$0
Marina del Ray Harbor	N	$0	$0	$0	$0	$0	$0
Coast of California, South Coast Region	S	$0	$0	$0	$0	$0	$0
Redondo Beach - King Harbor	N	$0	$0	$0	$0	$0	$0
East San Pedro Bay Ecosystem Restoration	S	$0	$0	$0	$0	$0	$0
Surfside/Sunset	C	$20,000,000	$1,000,000	$19,000,000	$0	$0	$0
Los Angeles - Long Beach Harbor	N	$0	$0	$0	$0	$0	$0
Huntington Harbour (Anaheim Second Entrance Channel)	S	$0	$0	$0	$0	$0	$0
Newport Harbor	N	$0	$0	$0	$0	$0	$0
Dana Point Harbor	N	$0	$0	$0	$0	$0	$0
San Clemente Shoreline	S	$11,000,000	$1,000,000	$10,000,000	$0	$0	$0
San Diego (Los Angeles District)							
Oceanside Harbor	S	$0	$0	$0	$0	$0	$0
San Diego County Shoreline	S	$0	$0	$0	$0	$0	$0
Solana and Encinitas Beach	S	$41,000,000	$1,000,000	$0	$40,000,000	$0	$0
Fletcher Cove, Solana Beach	N	$0	$0	$0	$0	$0	$0
Mission Bay	N	$0	$0	$0	$0	$0	$0
San Diego Harbor	C	$0	$0	$0	$0	$0	$0
Imperial Beach, Silver Strand Shoreline	N	$9,500,000	$1,000,000	$8,500,000	$0	$0	$0
Totals (Los Angeles District)		$130,800,000	$11,500,000	$37,600,000	$41,600,000	$20,100,000	$20,000,000
Totals [1]		$590,517,000	$150,994,000	$101,337,000	$119,565,000	$111,352,000	$107,269,000


Oregon
In Oregon, littoral drift changes seasonally. During the winter, the predominant wind and swell come from the southwest, creating littoral drift north. Summer wind and swell are mostly from the northwest, resulting in a drift to the south. Decacal patterns including El Niño and La Niña also have intermittent influences on local cell transport. Unlike other West Coast beaches, the Oregon Coast has no consistent net littoral drift. Arrows noted on map are general references. Along the central Oregon coast the estimated net transport is zero.
N
0 15 30 60
Miles
Direction of sediment flow

Oregon

Data for Oregon will be added in the next version of this Technical Review Document.

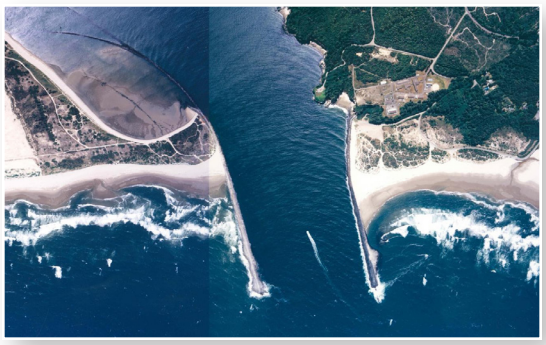
Coastal Storm Risk Management Project Reliability

- = GOOD
- = INTERMEDIATE
- = POOR
- = UNCONSTRUCTED
- = UNASSIGNED

Navigation Project Reliability

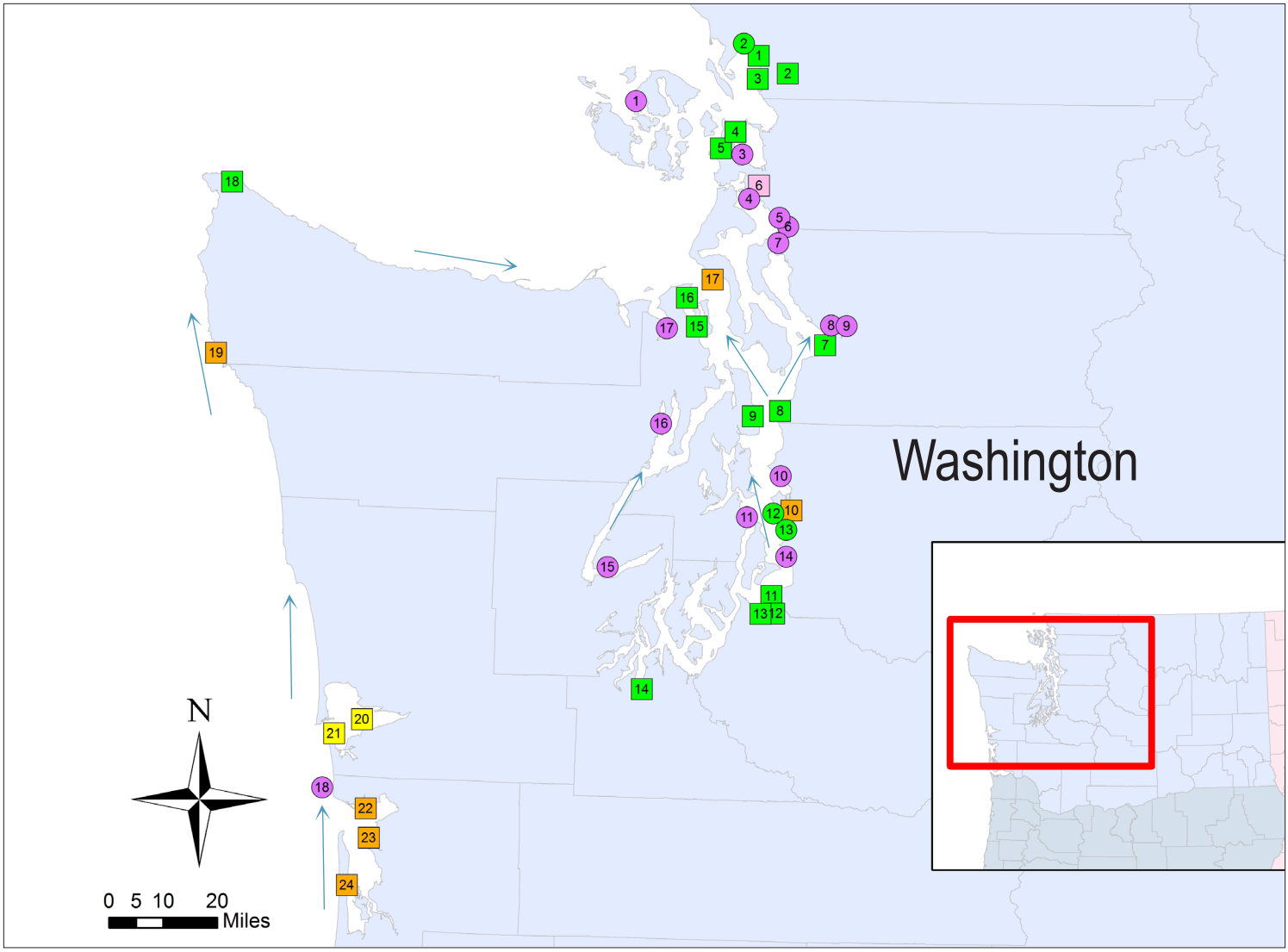
- = GOOD
- = MODERATE
- = POOR
- = FAILING
- = FAILED
- = UNASSIGNED

△ = INLET ONLY, NOT A FEDERAL NAVIGATION PROJECT



Coos Bay

Mouth of Columbia


Washington
N
0 5 10 20
Miles
Direction of sediment flow

Washington

PROJECT LEGEND

Key	Type	Project Name
		Geographic Area: Puget Sound - San Juan Islands and Straight of Georgia
1	ER	Deer Harbor Estuary Restoration
1	NV	Bellingham Harbor O&M - Squalicum Creek Waterway
2	CSRM	Lummi CSRM Project, Section 103
2	NV	Bellingham Harbor O&M - I&J Street Waterway
3	NV	Bellingham Harbor O&M - Whatcom Creek Waterway
4	NV	Anacortes Harbor O&M - Cap Sante Waterway
5	NV	Anacortes Harbor O&M - Anacortes Channel
3	ER	Telegraph Slough Restoration
		Geographic Area: Puget Sound - Whidbey
6	NV	Swinomish Channel O&M
4	ER	Dugualla Bay Restoration
5	ER	Milltown Island Restoration
6	ER	Deepwater Slough Phase 2
7	ER	Livingston Bay - Diked Farmland and Nearshore Habitat Restoration
8	ER	Smith Island Estuary Restoration
9	ER	Spencer Island Restoration
7	NV	Everett Harbor O&M
		Geographic Area: Puget Sound - South Central
8	NV	Edmonds Harbor O&M
9	NV	Kingston Harbor O&M
10	CSRM	Elliott Bay Seawall
11	ER	Harper Estuary Restoration
12	CSRM	Lincoln Park Erosion Control, Section 103
10	NV	Duwamish River (Seattle Harbor) O&M
13	ER	Seahurst Park Beach Restoration
14	ER	Beaconsfield Feeder Bluff Restoration
11	NV	Tacoma Harbor - Hylebos Waterway O&M
12	NV	Tacoma Harbor - Blair Waterway O&M
13	NV	Tacoma Harbor - City Waterway O&M
		Geographic Area: Puget Sound - South
14	NV	Olympia Harbor O&M

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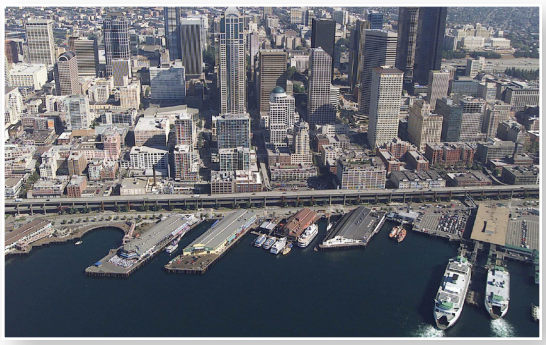
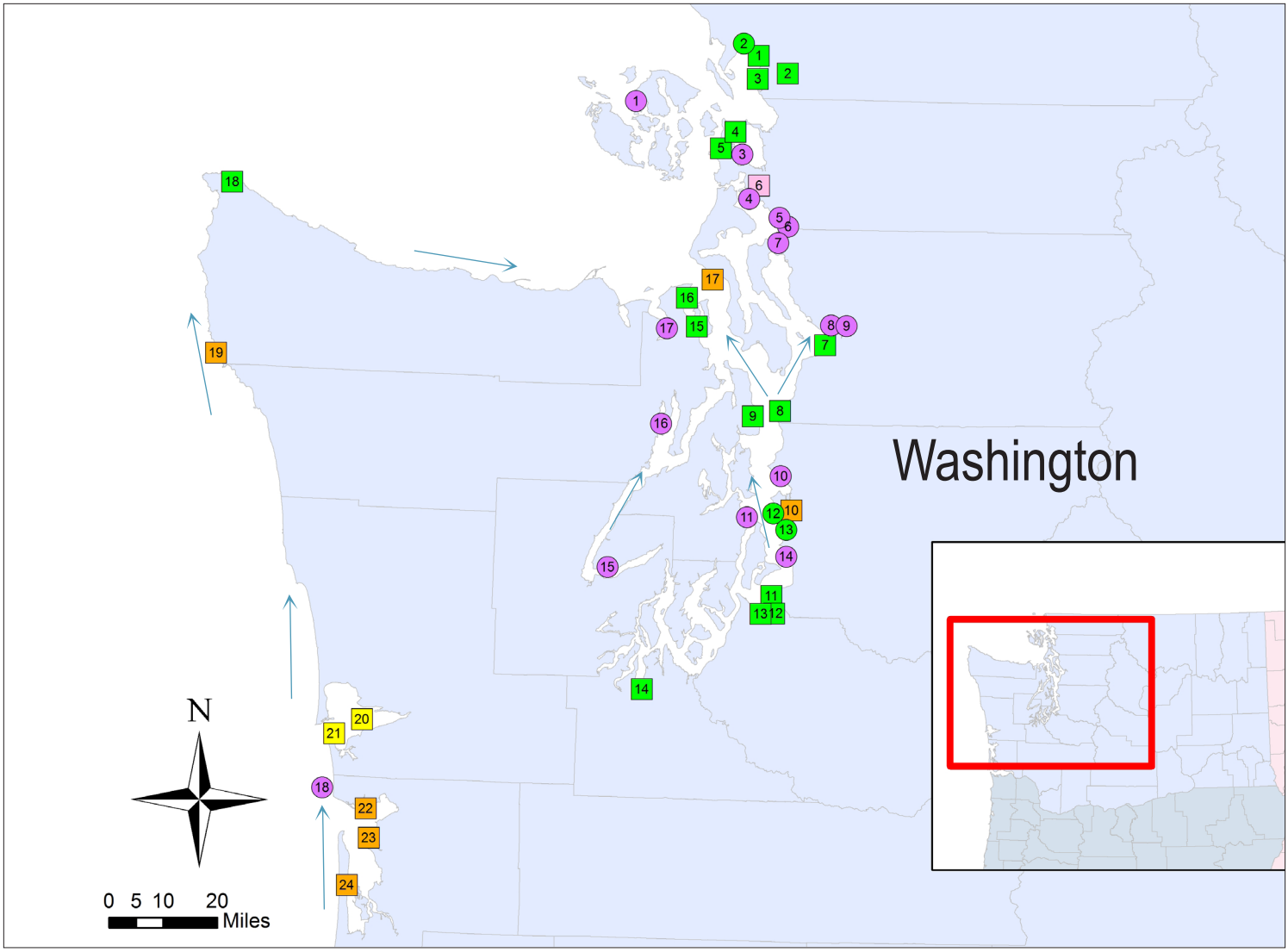


Elliott Bay Seawall

Lummi


Washington
N
0 5 10 20
Miles
Direction of sediment flow

Washington

PROJECT LEGEND

Key	Type	Project Name
		Geographic Area: Puget Sound - Hood Canal
15	ER	Tahuya Causeway Replacement and Estuary Restoration
16	ER	Point Whitney Lagoon Restoration
		Geographic Area: Puget Sound - North Central
15	NV	Oak Bay O&M
16	NV	Port Townsend O&M
17	NV	Lake Crockett (Keystone) Harbor O&M
		Geographic Area: Strait of Juan de Fuca
17	ER	Snow and Salmon Creek Restoration
18	NV	Neah Bay Section 107 Boat Basin O&M
		Geographic Area: Olympic Peninsula Washington Coast
19	NV	Quillayute at La Push O&M
		Geographic Area: Southwest Washington Coast
20	NV	Grays Harbor, WA O&M
21	NV	Westhaven Cove Small Boat Basin
18	CSRM	Shoalwater Bay, Shoreline Erosion, Washington
22	NV	Willapa Bay O&M - Tokeland
23	NV	Willapa Bay O&M - Bay Center
24	NV	Willapa Bay O&M - Nahcotta

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Washington

Project Type	Project Name and Project Reliability	Phase	Extent of Resources at Risk: Structures (residential, commercial)	Environment and Habitat	Infrastructure (roads, water/sewer lines, boardwalks, navigation structures)	Critical Facilities (police, fire, schools, hospitals, nursing homes)	Evacuation and Re-entry Routes	Recreation	Consequence/ Economic Impact Rating
	Geographic Area: Puget Sound - San Juan Islands and Straight of Georgia								
ER	Deer Harbor Estuary Restoration	S	•	•••	•	•	•	•	
NV	Bellingham Harbor O&M - Squalicum Creek Waterway	N							4
CSRM	Lummi CSRM Project, Section 103	N	•	•	••	••	•	•	
NV	Bellingham Harbor O&M - I&J Street Waterway	N							4
NV	Bellingham Harbor O&M - Whatcom Creek Waterway	N							4
NV	Anacortes Harbor O&M - Cap Sante Waterway	N							4
NV	Anacortes Harbor O&M - Anacortes Channel	N							1
ER	Telegraph Slough Restoration	S	•	•••	•	•	•	•	
	Geographic Area: Puget Sound - Whidbey								
NV	Swinomish Channel O&M	N							4
ER	Dugualla Bay Restoration	S	•	•••	•	•	•	•	
ER	Milltown Island Restoration	S	•	•••	•	•	•	•	
ER	Deepwater Slough Phase 2	S	•	•••	•	•	•	•	
ER	Livingston Bay - Diked Farmland and Nearshore Habitat Restoration	S	•	•••	•	•	•	•	
ER	Smith Island Estuary Restoration	S	•	•••	•	•	•	•	
ER	Spencer Island Restoration	S	•	•••	•	•	•	•	
NV	Everett Harbor O&M	N							3
	Geographic Area: Puget Sound - South Central								
NV	Edmonds Harbor O&M	N							5
NV	Kingston Harbor O&M	N							5
CSRM	Elliott Bay Seawall	S	•••	•••	•••	•••	•••	•••	
ER	Harper Estuary Restoration	S	•	•••	•	•	•	•	
CSRM	Lincoln Park Erosion Control, Section 103	R	••	•	•••	•••	•	••	
NV	Duwamish River (Seattle Harbor) O&M	N							1
ER	Seahurst Park Beach Restoration	U	•	•••	•	•	•	••	
ER	Beaconsfield Feeder Bluff Restoration	S	••	•••	•	•	•	•	
NV	Tacoma Harbor - Hylebos Waterway O&M	N							1
NV	Tacoma Harbor - Blair Waterway O&M	N							1
NV	Tacoma Harbor - City Waterway O&M	N							1
	Geographic Area: Puget Sound - South								
NV	Olympia Harbor O&M	N							3

Project Type

CSRM = Coastal Storm Risk Management
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ER = Ecosystem Restoration

Project Reliability

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Yellow = Intermediate (CSRM), Moderate (NV)
Orange = Poor (NV)
Pink = Failing (NV)
Red = Poor (CSRM), Failed (NV)
Purple = Unconstructed (CSRM)

Phase

S = Study
E = Pre-construction engineering and design
A = Awaiting initial construction funds
P = Partial construction funds received
C = Initial construction completed
U = Under Construction
R = Renourishment(s) initiated
N = Navigation maintenance

Extent of Resources at Risk

Coastal Storm Risk Management

••• = Significant
•• = Moderate
• = Minimal
x = None

Navigation

1 = Demonstrated highest economic impact or >10M Tons. Imminent life safety impact.
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5 = Negligible economics (Recreation Harbors, No commercial Activity). No life safety impact.

For complete definitions see page 7.

Washington

Project Name and Project Reliability	Phase	Estimated Future Federal Costs					
		Total (FY 2013 - FY 2017)	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
Geographic Area: Puget Sound - San Juan Islands and Straight of Georgia							
Deer Harbor Estuary Restoration	S	$0	$0	$0	$0	$0	$0
Bellingham Harbor O&M - Squalicum Creek Waterway	N	$0	$0	$0	$0	$0	$0
Lummi CSRM Project, Section 103	N	$0	$0	$0	$0	$0	$0
Bellingham Harbor O&M - I&J Street Waterway	N	$1,900,000	$0	$950,000	$0	$950,000	$0
Bellingham Harbor O&M - Whatcom Creek Waterway	N	$0	$0	$0	$0	$0	$0
Anacortes Harbor O&M - Cap Sante Waterway	N	$0	$0	$0	$0	$0	$0
Anacortes Harbor O&M - Anacortes Channel	N	$0	$0	$0	$0	$0	$0
Telegraph Slough Restoration	S	$0	$0	$0	$0	$0	$0
Geographic Area: Puget Sound - Whidbey							
Swinomish Channel O&M	N	$4,689,000	$0	$1,700,000	$940,000	$1,011,000	$1,038,000
Dugualla Bay Restoration	S	$0	$0	$0	$0	$0	$0
Milltown Island Restoration	S	$0	$0	$0	$0	$0	$0
Deepwater Slough Phase 2	S	$0	$0	$0	$0	$0	$0
Livingston Bay - Diked Farmland and Nearshore Habitat Restoration	S	$0	$0	$0	$0	$0	$0
Smith Island Estuary Restoration	S	$0	$0	$0	$0	$0	$0
Spencer Island Restoration	S	$0	$0	$0	$0	$0	$0
Everett Harbor O&M	N	$9,273,000	$1,750,000	$1,300,000	$2,061,000	$2,101,000	$2,061,000
Geographic Area: Puget Sound - South Central							
Edmonds Harbor O&M	N	$0	$0	$0	$0	$0	$0
Kingston Harbor O&M	N	$0	$0	$0	$0	$0	$0
Elliott Bay Seawall	S	$0	$0	$0	$0	$0	$0
Harper Estuary Restoration	S	$0	$0	$0	$0	$0	$0
Lincoln Park Erosion Control, Section 103	R	$0	$0	$0	$0	$0	$0
Duwamish River (Seattle Harbor) O&M	N	$2,215,000	$111,000	$927,000	$111,000	$955,000	$111,000
Seahurst Park Beach Restoration	U	$0	$0	$0	$0	$0	$0
Beaconsfield Feeder Bluff Restoration	S	$0	$0	$0	$0	$0	$0
Tacoma Harbor - Hylebos Waterway O&M	N	$0	$0	$0	$0	$0	$0
Tacoma Harbor - Blair Waterway O&M	N	$0	$0	$0	$0	$0	$0
Tacoma Harbor - City Waterway O&M	N	$0	$0	$0	$0	$0	$0
Geographic Area: Puget Sound - South							
Olympia Harbor O&M	N	$0	$0	$0	$0	$0	$0

Washington

Project Type	Project Name and Project Reliability	Phase	Extent of Resources at Risk: Structures (residential, commercial)	Environment and Habitat	Infrastructure (roads, water/sewer lines, boardwalks, navigation structures)	Critical Facilities (police, fire, schools, hospitals, nursing homes)	Evacuation and Re-entry Routes	Recreation	Consequence/ Economic Impact Rating
Geographic Area: Puget Sound - Hood Canal									
ER	Tahuya Causeway Replacement and Estuary Restoration	S	•	•••	•	•	•	•	
ER	Point Whitney Lagoon Restoration	S	•	•••	•	•	•	•	
Geographic Area: Puget Sound - North Central									
NV	Oak Bay O&M	N							5
NV	Port Townsend O&M	N							4
NV	Lake Crockett (Keystone) Harbor O&M	N							5
Geographic Area: Strait of Juan de Fuca									
ER	Snow and Salmon Creek Restoration	S	•	•••	•	•	•	•	
NV	Neah Bay Section 107 Boat Basin O&M	N							3
Geographic Area: Olympic Peninsula Washington Coast									
NV	Quillayute at La Push O&M	N							3
Geographic Area: Southwest Washington Coast									
NV	Grays Harbor, WA O&M	N							3
NV	Westhaven Cove Small Boat Basin	N							3
CSRM	Shoalwater Bay, Shoreline Erosion, Washington	U	••	•••	••	••	••	•	
NV	Willapa Bay O&M - Tokeland	N							5
NV	Willapa Bay O&M - Bay Center	N							5
NV	Willapa Bay O&M - Nahcotta	N							5

Project Type

CSRM = Coastal Storm Risk Management
NV = Navigation
ER = Ecosystem Restoration

Project Reliability

Indicated by background colors:

Green = Good (CSRM, NV)
Yellow = Intermediate (CSRM), Moderate (NV)
Orange = Poor (NV)
Pink = Failing (NV)
Red = Poor (CSRM), Failed (NV)
Purple = Unconstructed (CSRM)

Phase

S = Study
E = Pre-construction engineering and design
A = Awaiting initial construction funds
P = Partial construction funds received
C = Initial construction completed
U = Under Construction
R = Renourishment(s) initiated
N = Navigation maintenance

Extent of Resources at Risk

Coastal Storm Risk Management

••• = Significant
•• = Moderate
• = Minimal
x = None

Navigation

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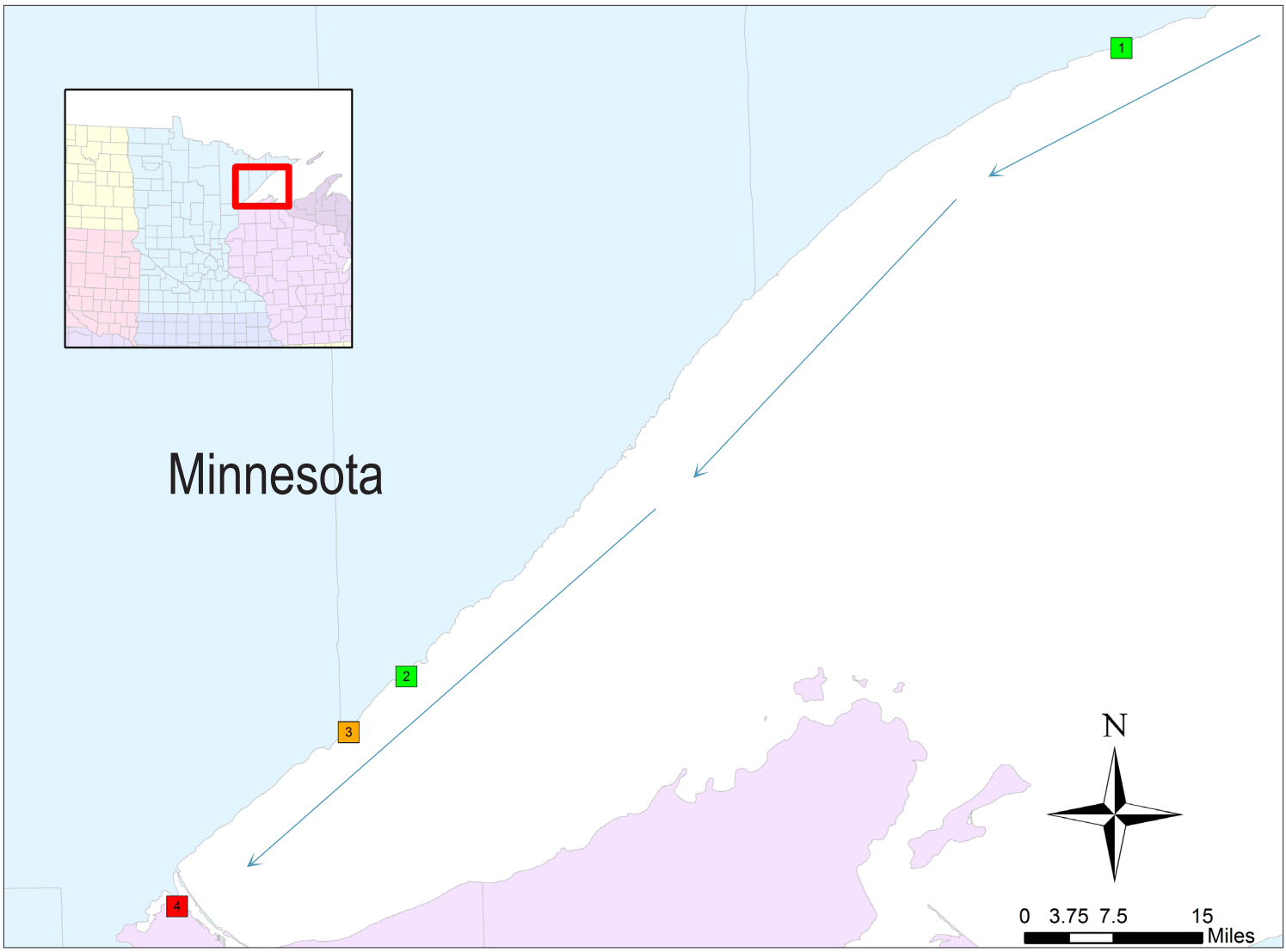
For complete definitions see page 7.

Washington

Project Name and Project Reliability	Phase	Estimated Future Federal Costs					
		Total (FY 2013 - FY 2017)	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
Geographic Area: Puget Sound - Hood Canal							
Tahuya Causeway Replacement and Estuary Restoration	S	$0	$0	$0	$0	$0	$0
Point Whitney Lagoon Restoration	S	$0	$0	$0	$0	$0	$0
Geographic Area: Puget Sound - North Central							
Oak Bay O&M	N	$0	$0	$0	$0	$0	$0
Port Townsend O&M	N	$325,000	$325,000	$0	$0	$0	$0
Lake Crockett (Keystone) Harbor O&M	N	$605,000	$0	$0	$605,000	$0	$0
Geographic Area: Strait of Juan de Fuca							
Snow and Salmon Creek Restoration	S	$0	$0	$0	$0	$0	$0
Neah Bay Section 107 Boat Basin O&M	N	$791,000	$0	$370,000	$53,000	$313,000	$55,000
Geographic Area: Olympic Peninsula Washington Coast							
Quillayute at La Push O&M	N	$3,393,000	$70,000	$1,455,000	$65,000	$1,738,000	$65,000
Geographic Area: Southwest Washington Coast							
Grays Harbor, WA O&M	N	$67,419,000	$11,000,000	$14,000,000	$13,725,000	$14,135,000	$14,559,000
Westhaven Cove Small Boat Basin	N	$0	$0	$0	$0	$0	$0
Shoalwater Bay, Shoreline Erosion, Washington	U	$0	$0	$0	$0	$0	$0
Willapa Bay O&M - Tokeland	N	$0	$0	$0	$0	$0	$0
Willapa Bay O&M - Bay Center	N	$801,000	$40,000	$300,000	$30,000	$401,000	$30,000
Willapa Bay O&M - Nahcotta	N	$0	$0	$0	$0	$0	$0
Totals		$91,411,000	$13,296,000	$21,002,000	$17,590,000	$21,604,000	$17,919,000


1
2
3
4
Minnesota
N
0 3.75 7.5 15
Miles
Direction of sediment flow

Minnesota

PROJECT LEGEND

Key	Type	Project Name
Geographic Area: Southern Lake Superior Shoreline		
1	NV	Grand Marais Harbor
2	NV	Two Harbors
3	NV	Knife River Harbor
4	NV	Duluth - Superior Harbor, MN and WI

Coastal Storm Risk Management Project Reliability

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Navigation Project Reliability

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Duluth Superior

Two Harbors

Minnesota

Project Type	Project Name and Project Reliability	Phase	Extent of Resources at Risk: Structures (residential, commercial)	Environment and Habitat	Infrastructure (roads, water/sewer lines, boardwalks, navigation structures)	Critical Facilities (police, fire, schools, hospitals, nursing homes)	Evacuation and Re-entry Routes	Recreation	Consequence/ Economic Impact Rating
	Geographic Area: Southern Lake Superior Shoreline								
NV	Houma Nav Canal: Bay	N							5
NV	Houma Nav Canal: Inland	N							1
NV	GIWW: 20 Grand Point	N							5
NV	GIWW: Port Allen Lock	N							1

Project Type

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Pink = Failing (NV)
Red = Poor (CSRM), Failed (NV)
Purple = Unconstructed (CSRM)

Phase

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R = Renourishment(s) initiated
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Extent of Resources at Risk

Coastal Storm Risk Management

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• = Minimal
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Navigation

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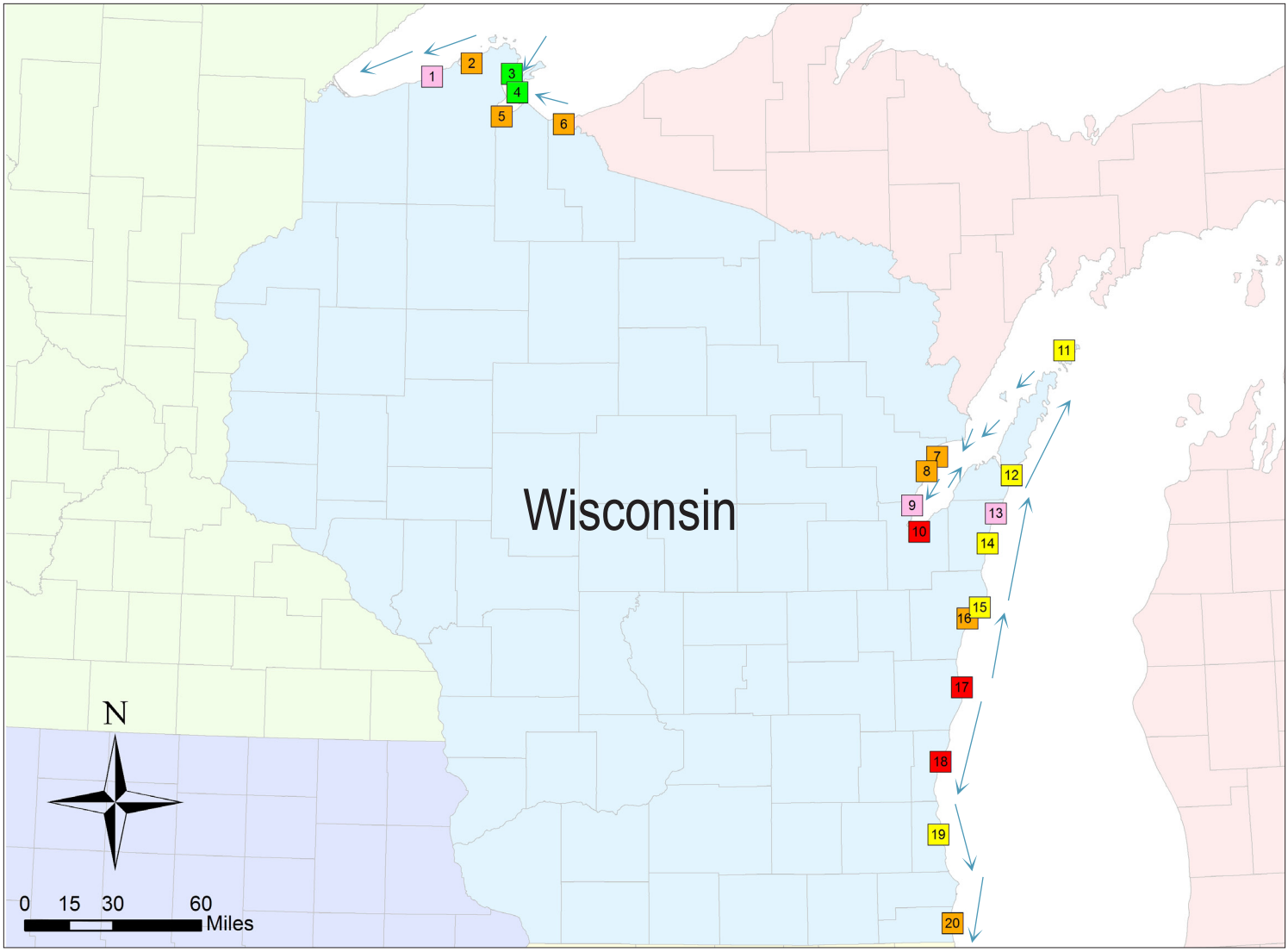
Minnesota		Estimated Future Federal Costs					
		Total (FY 2013 - FY 2017)	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
Project Name and Project Reliability	Phase	Geographic Area: Southern Lake Superior Shoreline					
Houma Nav Canal: Bay	N	$3,090,000	$300,000	$300,000	$830,000	$830,000	$830,000
Houma Nav Canal: Inland	N	$111,000	$0	$0	$37,000	$37,000	$37,000
GIWW: 20 Grand Point	N	$750,000	$150,000	$150,000	$150,000	$150,000	$150,000
GIWW: Port Allen Lock	N	$26,261,000	$5,997,000	$4,795,000	$4,931,000	$5,153,000	$5,385,000
Totals		$30,212,000	$6,447,000	$5,245,000	$5,948,000	$6,170,000	$6,402,000


Wisconsin
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N
0 15 30 60
Miles
Direction of sediment flow

Wisconsin

PROJECT LEGEND

Key	Type	Project Name
		Geographic Area: Southern Lake Superior Shoreline
1	NV	Port Wing Harbor
2	NV	Cornucopia Harbor
3	NV	Bayfield Harbor
4	NV	La Pointe Harbor
5	NV	Ashland Harbor
6	NV	Saxon Harbor
		Geographic Area: Western Lake Michigan Shoreline
7	NV	Oconto Harbor
8	NV	Pensaukee Harbor
9	NV	Big Suamico Harbor
10	NV	Green Bay Harbor
11	NV	Washington Island
12	NV	Sturgeon Bay Harbor And Lake Michigan Ship Canal
13	NV	Algoma Harbor
14	NV	Kewaunee Harbor
15	NV	Two Rivers Harbor
16	NV	Manitowoc Harbor
17	NV	Sheboygan Harbor
18	NV	Port Washington Harbor
19	NV	Milwaukee Harbor
20	NV	Kenosha Harbor

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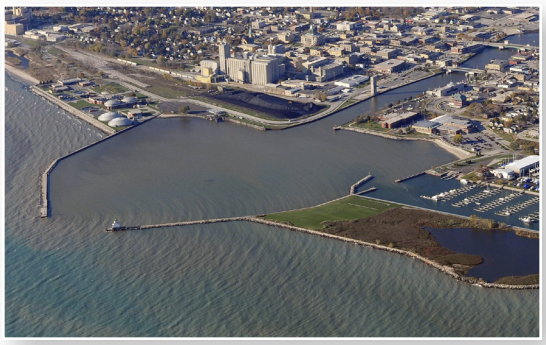

Manitowoc Harbor

Milwaukee

Wisconsin

Project Type	Project Name and Project Reliability	Phase	Extent of Resources at Risk: Structures (residential, commercial)	Environment and Habitat	Infrastructure (roads, water/sewer lines, boardwalks, navigation structures)	Critical Facilities (police, fire, schools, hospitals, nursing homes)	Evacuation and Re-entry Routes	Recreation	Consequence/ Economic Impact Rating
Geographic Area: Southern Lake Superior Shoreline									
NV	Port Wing Harbor	N							5
NV	Cornucopia Harbor	N							5
NV	Bayfield Harbor	N							5
NV	La Pointe Harbor	N							5
NV	Ashland Harbor	N							4
NV	Saxon Harbor	N							5
Geographic Area: La Pointe Harbor									
NV	Oconto Harbor	N							5
NV	Pensaukee Harbor	N							5
NV	Big Suamico Harbor	N							5
NV	Green Bay Harbor	N							2
NV	Washington Island	N							5
NV	Sturgeon Bay Harbor And Lake Michigan Ship Canal	N							4
NV	Algoma Harbor	N							4
NV	Kewaunee Harbor	N							4
NV	Two Rivers Harbor	N							5
NV	Manitowoc Harbor	N							4
NV	Sheboygan Harbor	N							4
NV	Port Washington Harbor	N							4
NV	Milwaukee Harbor	N							2
NV	Kenosha Harbor	N							4

Project Type

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Indicated by background colors:

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Extent of Resources at Risk

Coastal Storm Risk Management

... = Significant
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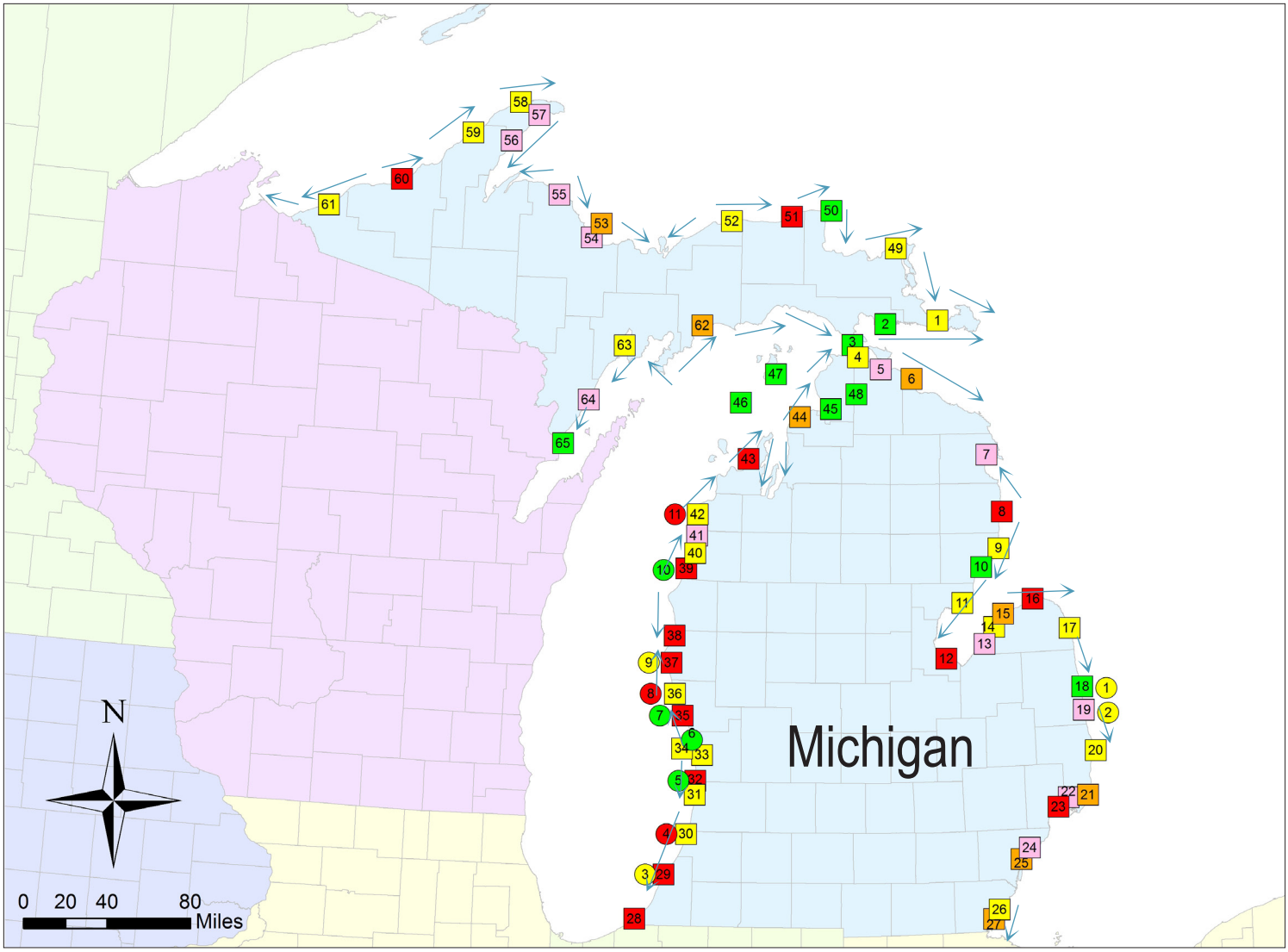
x = None

Navigation

1 = Demonstrated highest economic impact or >10M Tons. Imminent life safety impact.
2 = Demonstrated high economic impact or 5-10M Tons. Probable life safety impact.
3 = Demonstrated moderate economic impact or 1-5M Tons. Possible life safety impact.
4 = Low economic impact or <1M Tons. No life safety impact.
5 = Negligible economics (Recreation Harbors, No commercial Activity). No life safety impact.

For complete definitions see page 7.

Wisconsin		Estimated Future Federal Costs					
		Total (FY 2013 - FY 2017)	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
Project Name and Project Reliability	Phase	Geographic Area: Southern Lake Superior Shoreline					
Port Wing Harbor	N	$966,000	$181,000	$190,000	$190,000	$190,000	$215,000
Cornucopia Harbor	N	$933,000	$185,000	$185,000	$185,000	$189,000	$189,000
Bayfield Harbor	N	$750,000	$0	$250,000	$250,000	$250,000	$0
La Pointe Harbor	N	$854,000	$0	$190,000	$190,000	$237,000	$237,000
Ashland Harbor	N	$7,699,000	$1,015,000	$1,654,000	$1,657,000	$1,685,000	$1,688,000
Saxon Harbor	N	$1,570,000	$240,000	$250,000	$250,000	$415,000	$415,000
		Geographic Area: Western Lake Michigan Shoreline					
Oconto Harbor	N	$11,750,000	$2,350,000	$2,350,000	$2,350,000	$2,350,000	$2,350,000
Pensaukee Harbor	N	$3,335,000	$667,000	$667,000	$667,000	$667,000	$667,000
Big Suamico Harbor	N	$2,933,000	$560,000	$570,000	$570,000	$570,000	$663,000
Green Bay Harbor	N	$46,895,000	$10,006,000	$8,960,000	$9,132,000	$9,303,000	$9,494,000
Washington Island	N	$45,750,000	$9,150,000	$9,150,000	$9,150,000	$9,150,000	$9,150,000
Sturgeon Bay Harbor And Lake Michigan Ship Canal	N	$3,435,000	$0	$800,000	$780,000	$980,000	$875,000
Algoma Harbor	N	$2,525,000	$505,000	$505,000	$505,000	$505,000	$505,000
Kewaunee Harbor	N	$8,520,000	$1,200,000	$1,200,000	$2,040,000	$2,040,000	$2,040,000
Two Rivers Harbor	N	$5,225,000	$1,030,000	$1,030,000	$1,055,000	$1,055,000	$1,055,000
Manitowoc Harbor	N	$9,409,000	$2,240,000	$2,240,000	$1,620,000	$1,622,000	$1,687,000
Sheboygan Harbor	N	$10,825,000	$2,165,000	$2,165,000	$2,165,000	$2,165,000	$2,165,000
Port Washington Harbor	N	$2,469,000	$21,000	$612,000	$612,000	$612,000	$612,000
Milwaukee Harbor	N	$14,036,000	$1,968,000	$2,225,000	$3,281,000	$3,281,000	$3,281,000
Kenosha Harbor	N	$8,998,000	$1,798,000	$1,800,000	$1,800,000	$1,800,000	$1,800,000
Totals		$188,877,000	$35,281,000	$36,993,000	$38,449,000	$39,066,000	$39,088,000


Michigan
N
0 20 40 80
Miles
Direction of sediment flow

Michigan

PROJECT LEGEND

Key	Type	Project Name
		Geographic Area: Western Lake Huron Shoreline
1	NV	Detour Harbor
2	NV	Les Cheneaux Islands
3	NV	Channels In Straits Of Mackinac
4	NV	Macinaw City Harbor
5	NV	Cheboygan Harbor
6	NV	Hammond Bay Harbor
7	NV	Alpena Harbor
8	NV	Harrisville Harbor
9	NV	Au Sable Harbor
10	NV	Tawas Bay Harbor
11	NV	Point Lookout Harbor
12	NV	Saginaw River
13	NV	Sebewaing River
14	NV	Bay Port Harbor
15	NV	Caseville Harbor
16	NV	Port Austin Harbor
17	NV	Harbor Beach Harbor
18	NV	Port Sanilac Harbor
19	NV	Lexington Harbor
1	CSRM	Port Sanilac Harbor
2	CSRM	Lexington Harbor
		Geographic Area: Detroit River and Lake St. Clair
20	NV	Black River, Port Huron
21	NV	St. Clair River
22	NV	Channels In Lake St. Clair
23	NV	Clinton River
24	NV	Rouge River
25	NV	Detroit River
		Geographic Area: West End Lake Erie
26	NV	Monroe Harbor
27	NV	Bolles Harbor

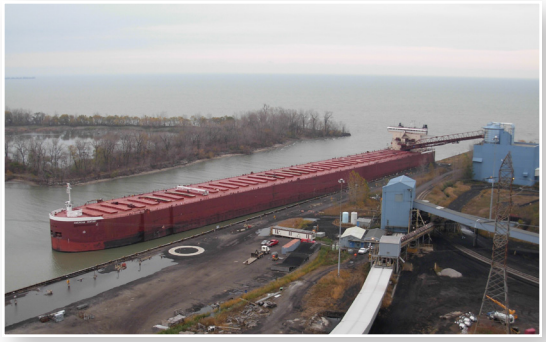
Coastal Storm Risk Management Project Reliability

- = GOOD
- = INTERMEDIATE
- = POOR
- = UNCONSTRUCTED
- = UNASSIGNED

Navigation Project Reliability

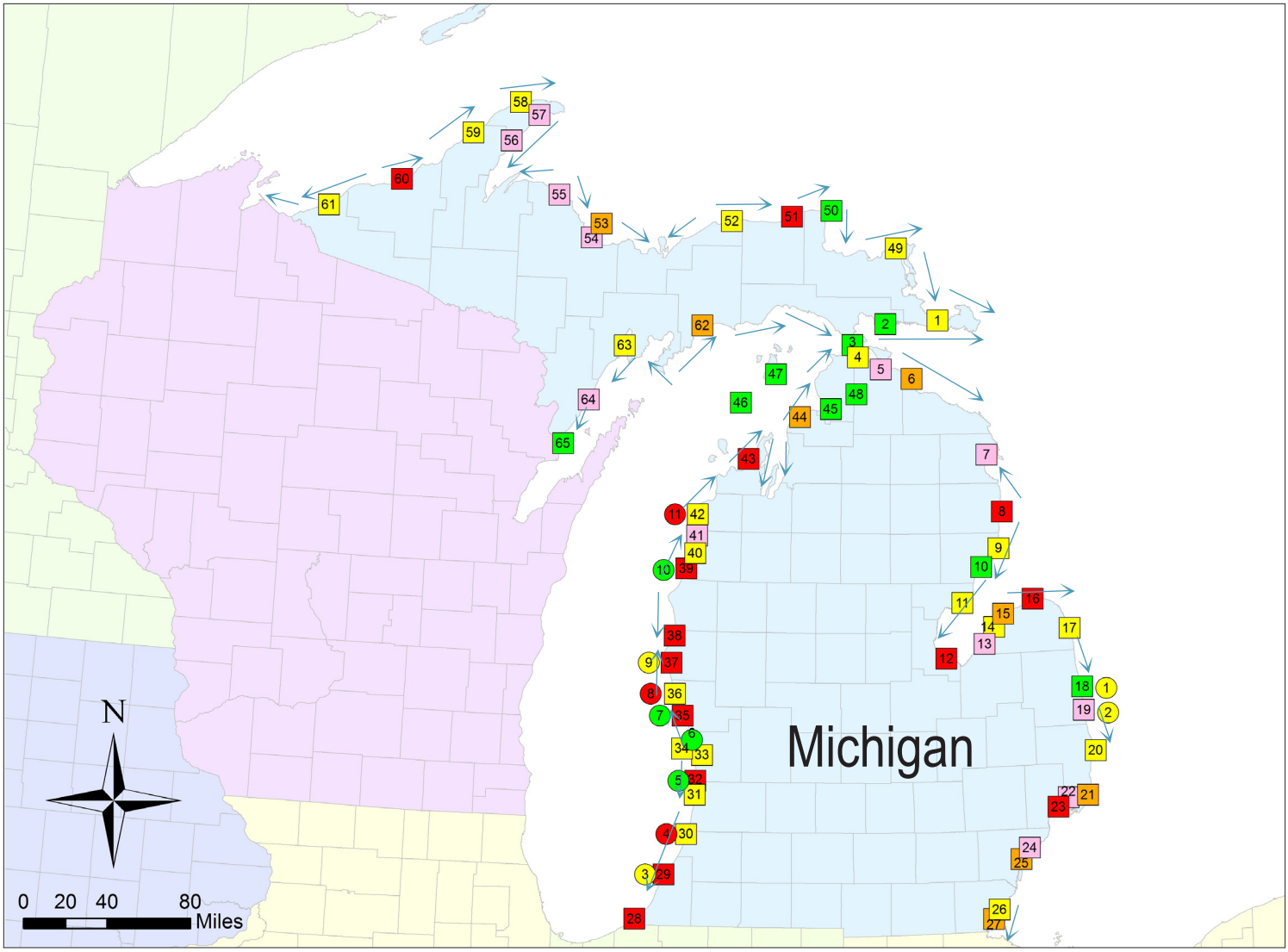
- = GOOD
- = MODERATE
- = POOR
- = FAILING
- = FAILED
- = UNASSIGNED

△ = INLET ONLY, NOT A FEDERAL NAVIGATION PROJECT



Monroe Harbor

St. Clair River, Port Huron


Michigan
N
0 20 40 80
Miles
Direction of sediment flow

Michigan Continued

PROJECT LEGEND

Key	Type	Project Name
		Geographic Area: Eastern Lake Michigan Shoreline
28	NV	New Buffalo Harbor
29	NV	St. Joseph Harbor
3	CSRM	St. Joseph Harbor, MI
30	NV	South Haven Harbor
4	CSRM	South Haven Harbor, MI
31	NV	Saugatuck Harbor
5	CSRM	Holland Harbor, MI
32	NV	Holland Harbor
33	NV	Grand Haven Harbor
34	NV	Grand River
6	CSRM	Grand Haven Harbor, MI
35	NV	Muskegon Harbor
7	CSRM	Muskegon Harbor, MI
8	CSRM	White Lake Harbor, MI
36	NV	White Lake Harbor
9	CSRM	Ludington Harbor, MI
37	NV	Ludington Harbor
38	NV	Pentwater Harbor
10	CSRM	Manistee Harbor, MI
39	NV	Manistee Harbor
40	NV	Portage Lake Harbor
41	NV	Arcadia Harbor
42	NV	Frankfort Harbor
11	CSRM	Frankfort Harbor, MI
43	NV	Leland Harbor
44	NV	Charlevoix Harbor
45	NV	Petoskey Harbor
46	NV	St. James Harbor
47	NV	Gray's Reef Passage

Coastal Storm Risk Management Project Reliability

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Navigation Project Reliability

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- = FAILED
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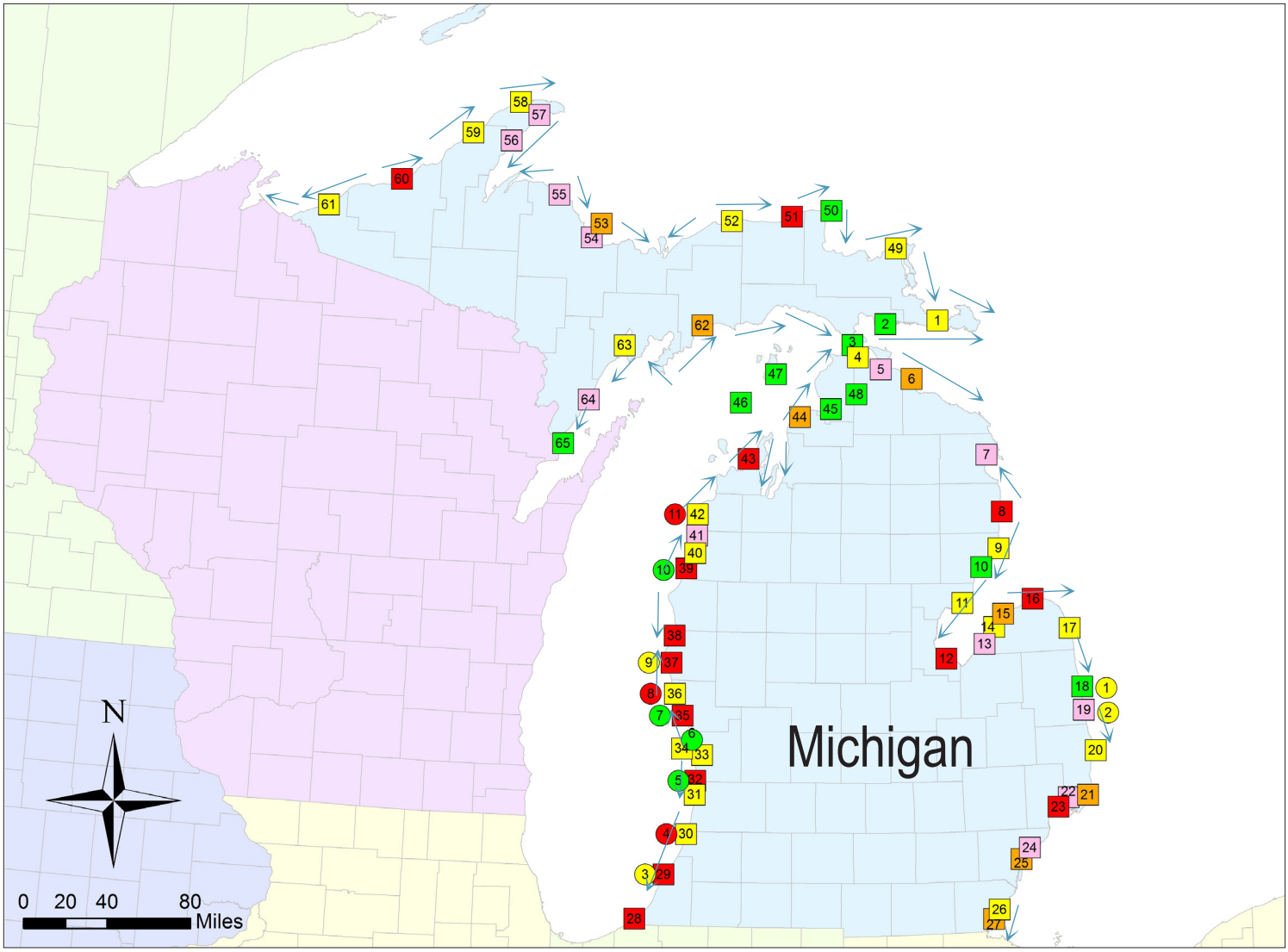
Michigan
N
0 20 40 80
Miles

Michigan Continued

PROJECT LEGEND

Key	Type	Project Name
		Geographic Area: Southern Lake Superior Shoreline
48	NV	Inland Route
49	NV	St. Marys River
50	NV	Whitefish Point Harbor
51	NV	Little Lake Harbor
52	NV	Grand Marais Harbor
53	NV	Presque Isle Harbor
54	NV	Marquette Harbor
55	NV	Big Bay Harbor
56	NV	Grand Traverse Bay Harbor
57	NV	Lac La Belle
58	NV	Eagle Harbor
59	NV	Keweenaw Waterway
60	NV	Ontonagon Harbor
61	NV	Black River Harbor
		Geographic Area: Western Lake Michigan Shoreline
62	NV	Manistique Harbor
63	NV	Little Bay De Noc Harbor
64	NV	Cedar River
65	NV	Menominee Harbor, MI and WI

Coastal Storm Risk Management Project Reliability

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- = UNASSIGNED

Navigation Project Reliability

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- = FAILED
- = UNASSIGNED

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Michigan

Project Type	Project Name and Project Reliability	Phase	Extent of Resources at Risk: Structures (residential, commercial)	Environment and Habitat	Infrastructure (roads, water/sewer lines, boardwalks, navigation structures)	Critical Facilities (police, fire, schools, hospitals, nursing homes)	Evacuation and Re-entry Routes	Recreation	Consequence/ Economic Impact Rating
	Geographic Area: Western Lake Huron Shoreline								
NV	Detour Harbor	N							5
NV	Les Cheneaux Islands	N							5
NV	Channels In Straits Of Mackinac	N							1
NV	Macinaw City Harbor	N							5
NV	Cheboygan Harbor	N							4
NV	Hammond Bay Harbor	N							5
NV	Alpena Harbor	N							2
NV	Harrisville Harbor	N							5
NV	Au Sable Harbor	N							5
NV	Tawas Bay Harbor	N							5
NV	Point Lookout Harbor	N							5
NV	Saginaw River	N							2
NV	Sebewaing River	N							5
NV	Bay Port Harbor	N							5
NV	Caseville Harbor	N							5
NV	Port Austin Harbor	N							5
NV	Harbor Beach Harbor	N							4
NV	Port Sanilac Harbor	N							5
NV	Lexington Harbor	N							5
CSRM	Port Sanilac Harbor		•	••	•	•	x	••	
CSRM	Lexington Harbor		•	••	•	•	x	••	
	Geographic Area: Detroit River and Lake St. Clair								
NV	Black River, Port Huron	N							4
NV	St. Clair River	N							1
NV	Channels In Lake St. Clair	N							1
NV	Clinton River	N							5
NV	Rouge River	N							2
NV	Detroit River	N							1
	Geographic Area: West End Lake Erie								
NV	Monroe Harbor	N							2
NV	Bolles Harbor	N							5

Project Type

CSRM = Coastal Storm Risk Management
NV = Navigation
ER = Ecosystem Restoration

Project Reliability

Indicated by background colors:

Green = Good (CSRM, NV)
Yellow = Intermediate (CSRM), Moderate (NV)
Orange = Poor (NV)
Pink = Failing (NV)
Red = Poor (CSRM), Failed (NV)
Purple = Unconstructed (CSRM)

Phase

S = Study
E = Pre-construction engineering and design
A = Awaiting initial construction funds
P = Partial construction funds received
C = Initial construction completed
U = Under Construction
R = Renourishment(s) initiated
N = Navigation maintenance

Extent of Resources at Risk

Coastal Storm Risk Management

••• = Significant
•• = Moderate
• = Minimal
x = None

Navigation

1 = Demonstrated highest economic impact or >10M Tons. Imminent life safety impact.
2 = Demonstrated high economic impact or 5-10M Tons. Probable life safety impact.
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5 = Negligible economics (Recreation Harbors, No commercial Activity). No life safety impact.

For complete definitions see page 7.

Michigan		Estimated Future Federal Costs					
		Total (FY 2013 - FY 2017)	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
Project Name and Project Reliability	Phase	Geographic Area: Western Lake Huron Shoreline					
Detour Harbor	N	$462,000	$0	$0	$154,000	$154,000	$154,000
Les Cheneaux Islands	N	$0	$0	$0	$0	$0	$0
Channels In Straits Of Mackinac	N	$0	$0	$0	$0	$0	$0
Macinaw City Harbor	N	$0	$0	$0	$0	$0	$0
Cheboygan Harbor	N	$2,120,000	$424,000	$424,000	$424,000	$424,000	$424,000
Hammond Bay Harbor	N	$1,475,000	$295,000	$295,000	$295,000	$295,000	$295,000
Alpena Harbor	N	$7,897,000	$897,000	$1,750,000	$1,750,000	$1,750,000	$1,750,000
Harrisville Harbor	N	$1,445,000	$285,000	$290,000	$290,000	$290,000	$290,000
Au Sable Harbor	N	$1,960,000	$0	$420,000	$480,000	$520,000	$540,000
Tawas Bay Harbor	N	$0	$0	$0	$0	$0	$0
Point Lookout Harbor	N	$1,800,000	$0	$0	$600,000	$600,000	$600,000
Saginaw River	N	$35,418,000	$6,925,000	$7,080,000	$6,524,000	$6,718,000	$8,171,000
Sebewaing River	N	$8,888,000	$1,748,000	$1,785,000	$1,785,000	$1,785,000	$1,785,000
Bay Port Harbor	N	$0	$0	$0	$0	$0	$0
Caseville Harbor	N	$1,300,000	$0	$325,000	$325,000	$325,000	$325,000
Port Austin Harbor	N	$0	$0	$0	$0	$0	$0
Harbor Beach Harbor	N	$5,000,000	$1,000,000	$1,000,000	$1,000,000	$1,000,000	$1,000,000
Port Sanilac Harbor	N	$1,044,000	$0	$250,000	$250,000	$272,000	$272,000
Lexington Harbor	N	$1,000,000	$0	$250,000	$250,000	$250,000	$250,000
Port Sanilac Harbor, MI		$750,000	$150,000	$150,000	$150,000	$150,000	$150,000
Lexington Harbor, MI		$750,000	$150,000	$150,000	$150,000	$150,000	$150,000
		Geographic Area: Detroit River and Lake St. Clair					
Black River, Port Huron	N	$8,960,000	$1,740,000	$1,790,000	$1,790,000	$1,790,000	$1,850,000
St. Clair River	N	$5,631,000	$1,125,000	$995,000	$1,060,000	$1,120,000	$1,331,000
Channels In Lake St. Clair	N	$9,405,000	$1,722,000	$1,020,000	$1,752,000	$2,454,000	$2,457,000
Clinton River	N	$7,668,000	$1,510,000	$1,510,000	$1,510,000	$1,569,000	$1,569,000
Rouge River	N	$7,092,000	$960,000	$0	$2,000,000	$2,066,000	$2,066,000
Detroit River	N	$43,682,000	$7,433,000	$8,590,000	$8,895,000	$9,214,000	$9,550,000
		Geographic Area: West End Lake Erie					
Monroe Harbor	N	$9,647,000	$1,927,000	$1,930,000	$1,930,000	$1,930,000	$1,930,000
Bolles Harbor	N	$1,513,000	$0	$265,000	$416,000	$416,000	$416,000

Michigan

Project Type	Project Name and Project Reliability	Phase	Extent of Resources at Risk (Cont.)						
			Structures (residential, commercial)	**Environment and Habitat**	**Infrastructure** (roads, water/sewer lines, boardwalks, navigation structures)	**Critical Facilities** (police, fire, schools, hospitals, nursing homes)	**Evacuation and Re-entry Routes**	**Recreation**	**Consequence/ Economic Impact Rating**
			Geographic Area: Eastern Lake Michigan Shoreline						
NV	New Buffalo Harbor	N							5
NV	St. Joseph Harbor	N							4
CSRM	St. Joseph Harbor, MI		••	••	••	•	x	•••	
NV	South Haven Harbor	N							5
CSRM	South Haven Harbor, MI		••	••	•	•	x	•••	
NV	Saugatuck Harbor	N							5
CSRM	Holland Harbor, MI		•	••	•	•	x	•••	
NV	Holland Harbor	N							2
NV	Grand Haven Harbor	N							2
NV	Grand River	N							5
CSRM	Grand Haven Harbor, MI		••	••	••	•	x	•••	
NV	Muskegon Harbor	N							2
CSRM	Muskegon Harbor, MI		••	••	••	•	x	•••	
CSRM	White Lake Harbor, MI		•	••	•	•	x	••	
NV	White Lake Harbor	N							5
CSRM	Ludington Harbor, MI		••	••	••	•	x	•••	
NV	Ludington Harbor	N							4
NV	Pentwater Harbor	N							5
CSRM	Manistee Harbor, MI		••	••	••	•	x	••	
NV	Manistee Harbor	N							2
NV	Portage Lake Harbor	N							5
NV	Arcadia Harbor	N							5
NV	Frankfort Harbor	N							4
CSRM	Frankfort Harbor, MI		•	••	••	•	x	••	
NV	Leland Harbor	N							5
NV	Charlevoix Harbor	N							4
NV	Petoskey Harbor	N							5
NV	St. James Harbor	N							5
NV	Gray's Reef Passage	N							1

Project Type

CSRM = Coastal Storm Risk Management
NV = Navigation
ER = Ecosystem Restoration

Project Reliability

Indicated by background colors:

Green = Good (CSRM, NV)
Yellow = Intermediate (CSRM), Moderate (NV)
Orange = Poor (NV)
Pink = Failing (NV)
Red = Poor (CSRM), Failed (NV)
Purple = Unconstructed (CSRM)

Phase

S = Study
E = Pre-construction engineering and design
A = Awaiting initial construction funds
P = Partial construction funds received
C = Initial construction completed
U = Under Construction
R = Renourishment(s) initiated
N = Navigation maintenance

Extent of Resources at Risk

Coastal Storm Risk Management

••• = Significant
•• = Moderate
• = Minimal
x = None

Navigation

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5 = Negligible economics (Recreation Harbors, No commercial Activity). No life safety impact.

For complete definitions see page 7.

Michigan

Project Name and Project Reliability	Phase	Estimated Future Federal Costs (Cont.)					
		Total (FY 2013 - FY 2017)	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
		Geographic Area: Eastern Lake Michigan Shoreline					
New Buffalo Harbor	N	$1,070,000	$219,000	$270,000	$153,000	$153,000	$275,000
St. Joseph Harbor	N	$8,123,000	$1,879,000	$1,735,000	$1,198,000	$2,038,000	$1,273,000
St. Joseph Harbor, MI		$750,000	$150,000	$150,000	$150,000	$150,000	$150,000
South Haven Harbor	N	$1,765,000	$345,000	$355,000	$355,000	$355,000	$355,000
South Haven Harbor, MI		$750,000	$150,000	$150,000	$150,000	$150,000	$150,000
Saugatuck Harbor	N	$1,488,000	$0	$370,000	$370,000	$370,000	$378,000
Holland Harbor, MI		$750,000	$150,000	$150,000	$150,000	$150,000	$150,000
Holland Harbor	N	$10,988,000	$2,645,000	$2,656,000	$1,208,000	$3,318,000	$1,161,000
Grand Haven Harbor	N	$11,299,000	$1,716,000	$2,700,000	$1,955,000	$2,893,000	$2,035,000
Grand River	N	$0	$0	$0	$0	$0	$0
Grand Haven Harbor, MI		$300,000	$150,000	$150,000	$0	$0	$0
Muskegon Harbor	N	$3,017,000	$0	$650,000	$715,000	$787,000	$865,000
Muskegon Harbor, MI		$300,000	$150,000	$150,000	$0	$0	$0
White Lake Harbor, MI		$750,000	$150,000	$150,000	$150,000	$150,000	$150,000
White Lake Harbor	N	$1,275,000	$0	$300,000	$325,000	$325,000	$325,000
Ludington Harbor, MI		$300,000	$150,000	$150,000	$0	$0	$0
Ludington Harbor	N	$2,457,000	$0	$590,000	$590,000	$628,000	$649,000
Pentwater Harbor	N	$1,187,000	$204,000	$230,000	$239,000	$251,000	$263,000
Manistee Harbor, MI		$750,000	$150,000	$150,000	$150,000	$150,000	$150,000
Manistee Harbor	N	$3,209,000	$573,000	$575,000	$675,000	$643,000	$743,000
Portage Lake Harbor	N	$895,000	$0	$215,000	$215,000	$215,000	$250,000
Arcadia Harbor	N	$1,048,000	$187,000	$213,000	$211,000	$216,000	$221,000
Frankfort Harbor	N	$2,952,000	$277,000	$665,000	$665,000	$665,000	$680,000
Frankfort Harbor, MI		$300,000	$150,000	$150,000	$0	$0	$0
Leland Harbor	N	$1,351,000	$236,000	$260,000	$271,000	$285,000	$299,000
Charlevoix Harbor	N	$1,060,000	$185,000	$203,000	$214,000	$224,000	$234,000
Petoskey Harbor	N	$0	$0	$0	$0	$0	$0
St. James Harbor	N	$0	$0	$0	$0	$0	$0
Gray's Reef Passage	N	$801,000	$0	$0	$267,000	$267,000	$267,000

Michigan

Project Type	Project Name and Project Reliability	Phase	Extent of Resources at Risk (Cont.)						
			Structures (residential, commercial)	**Environment and Habitat**	**Infrastructure** (roads, water/sewer lines, boardwalks, navigation structures)	**Critical Facilities** (police, fire, schools, hospitals, nursing homes)	**Evacuation and Re-entry Routes**	**Recreation**	**Consequence/ Economic Impact Rating**
Geographic Area: Southern Lake Superior Shoreline									
NV	Inland Route	N							5
NV	St. Marys River	N							1
NV	Whitefish Point Harbor	N							5
NV	Little Lake Harbor	N							5
NV	Grand Marais Harbor	N							5
NV	Presque Isle Harbor	N							2
NV	Marquette Harbor	N							2
NV	Big Bay Harbor	N							5
NV	Grand Traverse Bay Harbor	N							5
NV	Lac La Belle	N							5
NV	Eagle Harbor	N							5
NV	Keweenaw Waterway	N							4
NV	Ontonagon Harbor	N							5
NV	Black River Harbor	N							5
Geographic Area: Western Lake Michigan Shoreline									
NV	Manistique Harbor	N							5
NV	Little Bay De Noc Harbor	N							5
NV	Cedar River	N							5
NV	Menominee Harbor, MI and WI	N							4

Project Type

CSRM = Coastal Storm Risk Management
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ER = Ecosystem Restoration

Project Reliability

Indicated by background colors:

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Purple = Unconstructed (CSRM)

Phase

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Extent of Resources at Risk

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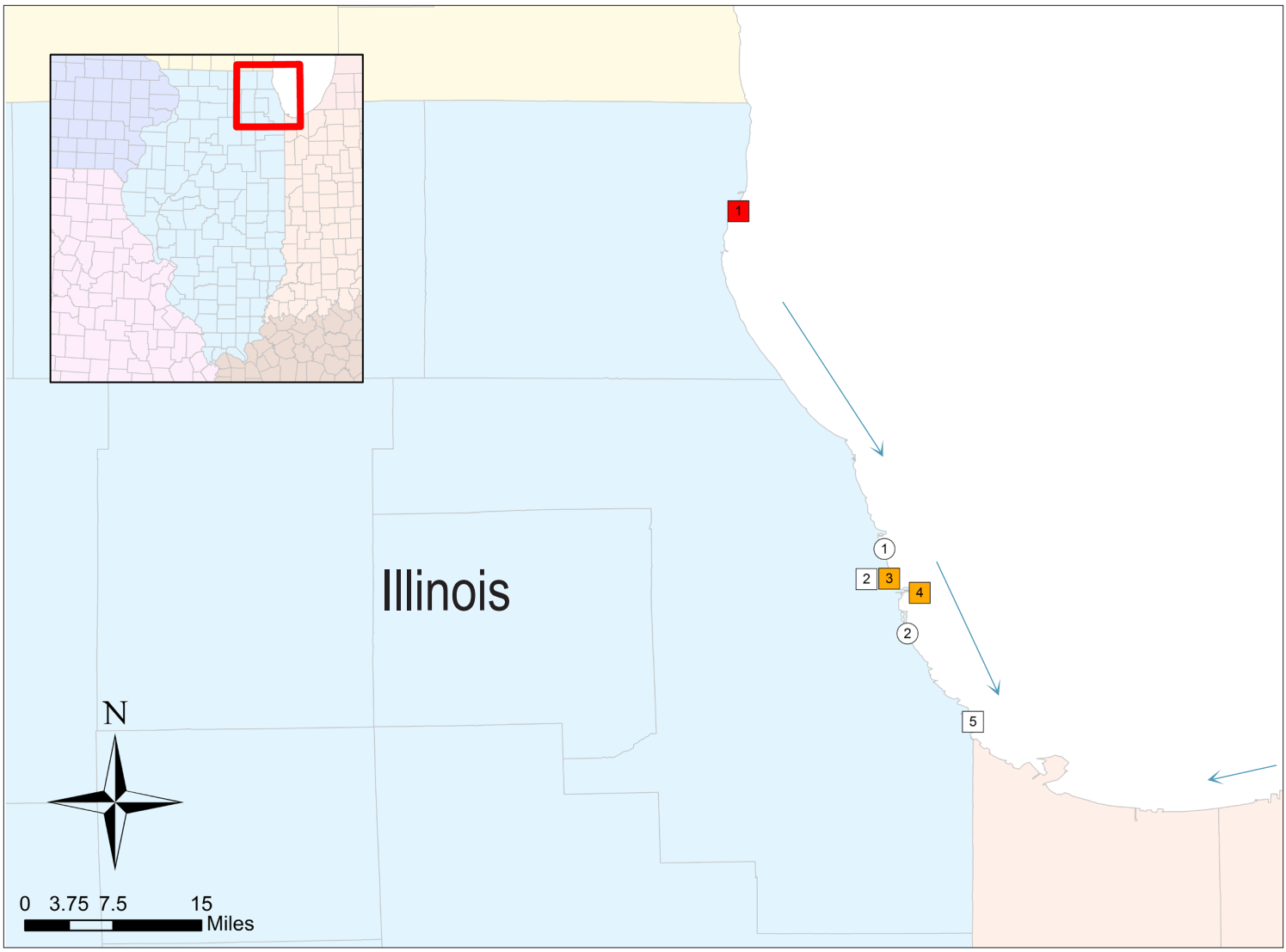
For complete definitions see page 7.

Michigan		Estimated Future Federal Costs (Cont.)					
		Total (FY 2013 - FY 2017)	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
Project Name and Project Reliability	Phase	Geographic Area: Southern Lake Superior Shoreline					
Inland Route	N	$23,000	$0	$0	$23,000	$0	$0
St. Marys River	N	$62,726,000	$12,570,000	$11,645,000	$12,202,000	$12,638,000	$13,671,000
Whitefish Point Harbor	N	$1,200,000	$0	$300,000	$300,000	$300,000	$300,000
Little Lake Harbor	N	$2,494,000	$469,000	$470,000	$493,000	$518,000	$544,000
Grand Marais Harbor	N	$2,673,000	$533,000	$535,000	$535,000	$535,000	$535,000
Presque Isle Harbor	N	$0	$0	$0	$0	$0	$0
Marquette Harbor	N	$3,215,000	$625,000	$625,000	$655,000	$655,000	$655,000
Big Bay Harbor	N	$1,131,000	$221,000	$220,000	$222,000	$228,000	$240,000
Grand Traverse Bay Harbor	N	$1,520,000	$0	$380,000	$380,000	$380,000	$380,000
Lac La Belle	N	$1,250,000	$250,000	$250,000	$250,000	$250,000	$250,000
Eagle Harbor	N	$0	$0	$0	$0	$0	$0
Keweenaw Waterway	N	$4,489,000	$938,000	$882,000	$882,000	$882,000	$905,000
Ontonagon Harbor	N	$3,033,000	$48,000	$740,000	$740,000	$740,000	$765,000
Black River Harbor	N	$1,083,000	$0	$260,000	$260,000	$260,000	$303,000
Geographic Area: Western Lake Michigan Shoreline							
Manistique Harbor	N	$0	$0	$0	$0	$0	$0
Little Bay De Noc Harbor	N	$0	$0	$0	$0	$0	$0
Cedar River	N	$2,730,000	$525,000	$525,000	$548,000	$560,000	$572,000
Menominee Harbor, MI and WI	N	$5,090,000	$650,000	$1,110,000	$1,110,000	$1,110,000	$1,110,000
Totals		$316,499,000	$54,936,000	$61,548,000	$62,756,000	$68,681,000	$68,578,000


Illinois
N
0 3.75 7.5 15
Miles
1
2 3
4
2
1
5
Direction of sediment flow

Illinois

PROJECT LEGEND

Key	Type	Project Name
Geographic Area: Northern Illinois - Illinois Bluff Coast		
1	NV	Waukegan Harbor
Geographic Area: Chicago Shoreline		
2	NV	North Branch Chicago River
(1)	CSRM	Chicago Shoreline
3	NV	Chicago River
4	NV	Chicago Harbor
(2)	CSRM	Casino Beach
Geographic Area: East Chicago		
5	NV	Chicago CDF (Calumet Harbor)

Coastal Storm Risk Management Project Reliability

- = GOOD
- = INTERMEDIATE
- = POOR
- = UNCONSTRUCTED
- = UNASSIGNED

Navigation Project Reliability

- = GOOD
- = MODERATE
- = POOR
- = FAILING
- = FAILED
- = UNASSIGNED

△ = INLET ONLY, NOT A FEDERAL NAVIGATION PROJECT

Chicago Harbor

Chicago Shoreline

Illinois

Project Type	Project Name and Project Reliability	Phase	Extent of Resources at Risk: Structures (residential, commercial)	Environment and Habitat	Infrastructure (roads, water/sewer lines, boardwalks, navigation structures)	Critical Facilities (police, fire, schools, hospitals, nursing homes)	Evacuation and Re-entry Routes	Recreation	Consequence/ Economic Impact Rating
Geographic Area: Northern Illinois - Illinois Bluff Coast									
NV	Waukegan Harbor	N							2
Geographic Area: Chicago Shoreline									
NV	North Branch Chicago River	N							
CSRM	Chicago Shoreline	C	x	x	x	x	x	x	
NV	Chicago River	N							
NV	Chicago Harbor	N							1
CSRM	Casino Beach	C	x	x	x	x	x	x	
Geographic Area: East Chicago									
NV	Chicago CDF (Calumet Harbor)	N							1

Project Type

CSRM = Coastal Storm Risk Management
NV = Navigation
ER = Ecosystem Restoration

Project Reliability

Indicated by background colors:

Green = Good (CSRM, NV)
Yellow = Intermediate (CSRM), Moderate (NV)
Orange = Poor (NV)
Pink = Failing (NV)
Red = Poor (CSRM), Failed (NV)
Purple = Unconstructed (CSRM)

Phase

S = Study
E = Pre-construction engineering and design
A = Awaiting initial construction funds
P = Partial construction funds received
C = Initial construction completed
U = Under Construction
R = Renourishment(s) initiated
N = Navigation maintenance

Extent of Resources at Risk

Coastal Storm Risk Management

••• = Significant
•• = Moderate
• = Minimal
x = None

Navigation

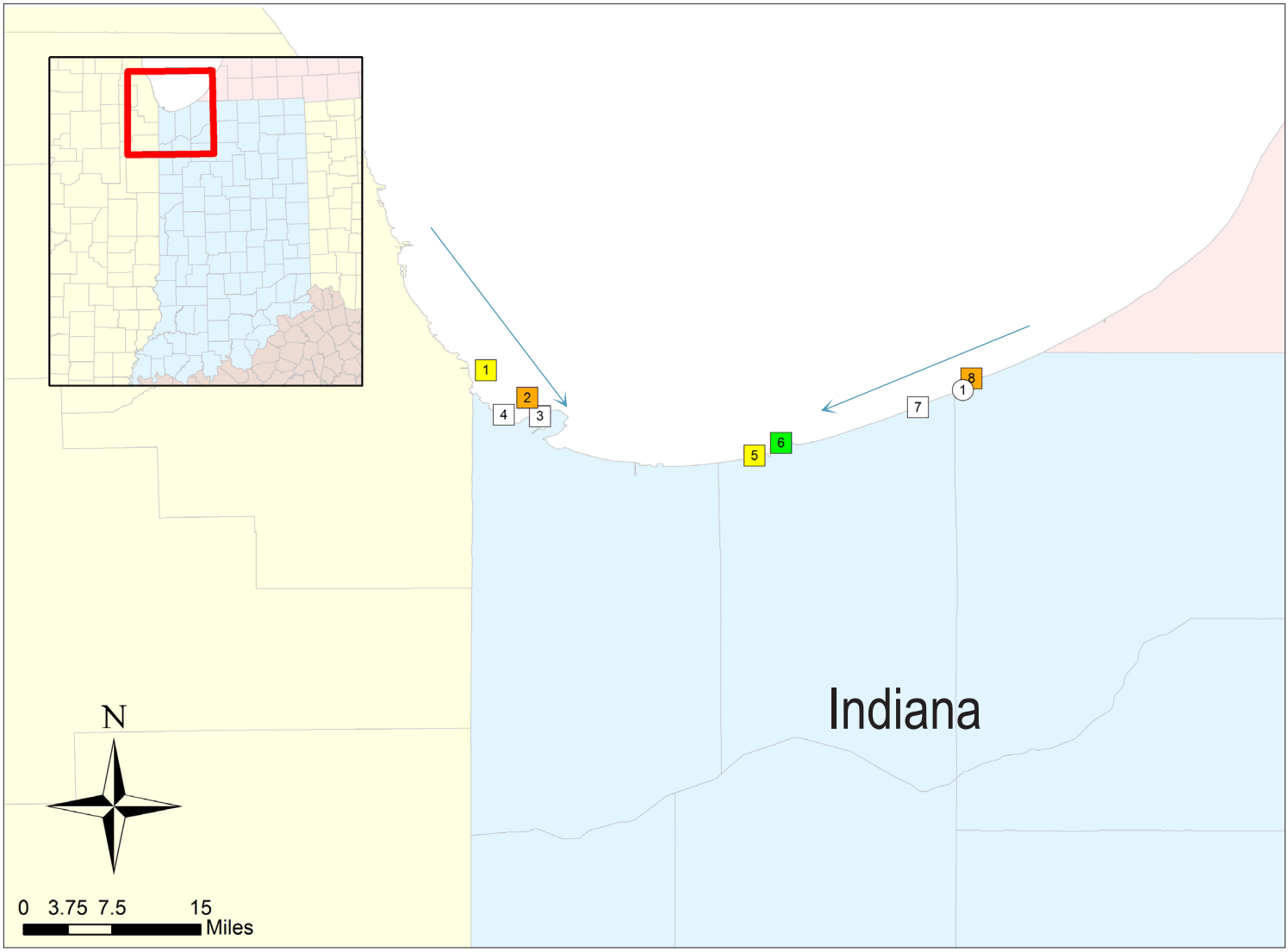
1 = Demonstrated highest economic impact or >10M Tons. Imminent life safety impact.
2 = Demonstrated high economic impact or 5-10M Tons. Probable life safety impact.
3 = Demonstrated moderate economic impact or 1-5M Tons. Possible life safety impact.
4 = Low economic impact or <1M Tons. No life safety impact.
5 = Negligible economics (Recreation Harbors, No commercial Activity). No life safety impact.

For complete definitions see page 7.

Illinois		Estimated Future Federal Costs					
		Total (FY 2013 - FY 2017)	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
Project Name and Project Reliability	Phase	Geographic Area: Northern Illinois - Illinois Bluff Coast					
Waukegan Harbor	N	$30,074,000	$4,771,000	$6,049,000	$6,230,000	$6,416,000	$6,608,000
		Geographic Area: Chicago Shoreline					
North Branch Chicago River	N	$0	$0	$0	$0	$0	$0
Chicago Shoreline	C	$0	$0	$0	$0	$0	$0
Chicago River	N	$0	$0	$0	$0	$0	$0
Chicago Harbor	N	$126,583,000	$13,064,000	$19,848,000	$30,302,000	$31,213,000	$32,156,000
Casino Beach	C	$0	$0	$0	$0	$0	$0
		Geographic Area: East Chicago					
Chicago CDF (Calumet Harbor)	N	$9,460,000	$1,320,000	$1,360,000	$1,400,000	$2,650,000	$2,730,000
Totals		$166,117,000	$19,155,000	$27,257,000	$37,932,000	$40,279,000	$41,494,000

Opportunities for Action

1. There is a potential to use dredged material as core for breakwaters at the Burnham Park Lacustrine Restoration Breakwater System. Material would come from dredging of the Chicago Harbor/River and would replace approximately 44,500 cy of quarry run for a savings of approx. $266,000.


1
2
4
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5
6
7
8
1
Indiana
N
0 3.75 7.5 15
Miles
Direction of sediment flow

Indiana

PROJECT LEGEND

Key	Type	Project Name
		Geographic Area: East Chicago
1	NV	Calumet Harbor and River
2	NV	Indiana Harbor
3	NV	Indiana Harbor, Confined Disposal Facility, IN
		Geographic Area: Indiana Dunes Coast - Eastern Indiana
4	NV	Whiting Shoreline Waterfront Project, IN
5	NV	Burns Waterway Small Boat Harbor
6	NV	Burns Waterway Harbor
7	NV	Beverly Shores
1	CSRM	Indiana Shoreline
8	NV	Michigan City Harbor, IN

Coastal Storm Risk Management Project Reliability

- = GOOD
- = INTERMEDIATE
- = POOR
- = UNCONSTRUCTED
- = UNASSIGNED

Navigation Project Reliability

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- = MODERATE
- = POOR
- = FAILING
- = FAILED
- = UNASSIGNED

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Indiana Shoreline Before

Indiana Shoreline After

Indiana

Project Type	Project Name and Project Reliability	Phase	Extent of Resources at Risk: Structures (residential, commercial)	Environment and Habitat	Infrastructure (roads, water/sewer lines, boardwalks, navigation structures)	Critical Facilities (police, fire, schools, hospitals, nursing homes)	Evacuation and Re-entry Routes	Recreation	Consequence/ Economic Impact Rating
Geographic Area: East Chicago									
NV	Calumet Harbor and River	N							1
NV	Indiana Harbor	N							1
NV	Indiana Harbor, Confined Disposal Facility, IN	N							1
Geographic Area: Indiana Dunes Coast - Eastern Indiana									
NV	Whiting Shoreline Waterfront Project, IN	N							
NV	Burns Waterway Small Boat Harbor	N							3
NV	Burns Waterway Harbor	N							1
NV	Beverly Shores	N							
CSRM	Indiana Shoreline	C	•	•••	•	•	•	•	
NV	Michigan City Harbor, IN	N							3

Project Type

CSRM = Coastal Storm Risk Management
NV = Navigation
ER = Ecosystem Restoration

Project Reliability

Indicated by background colors:

Green = Good (CSRM, NV)
Yellow = Intermediate (CSRM), Moderate (NV)
Orange = Poor (NV)
Pink = Failing (NV)
Red = Poor (CSRM), Failed (NV)
Purple = Unconstructed (CSRM)

Phase

S = Study
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P = Partial construction funds received
C = Initial construction completed
U = Under Construction
R = Renourishment(s) initiated
N = Navigation maintenance

Extent of Resources at Risk

Coastal Storm Risk Management

••• = Significant
•• = Moderate
• = Minimal
x = None

Navigation

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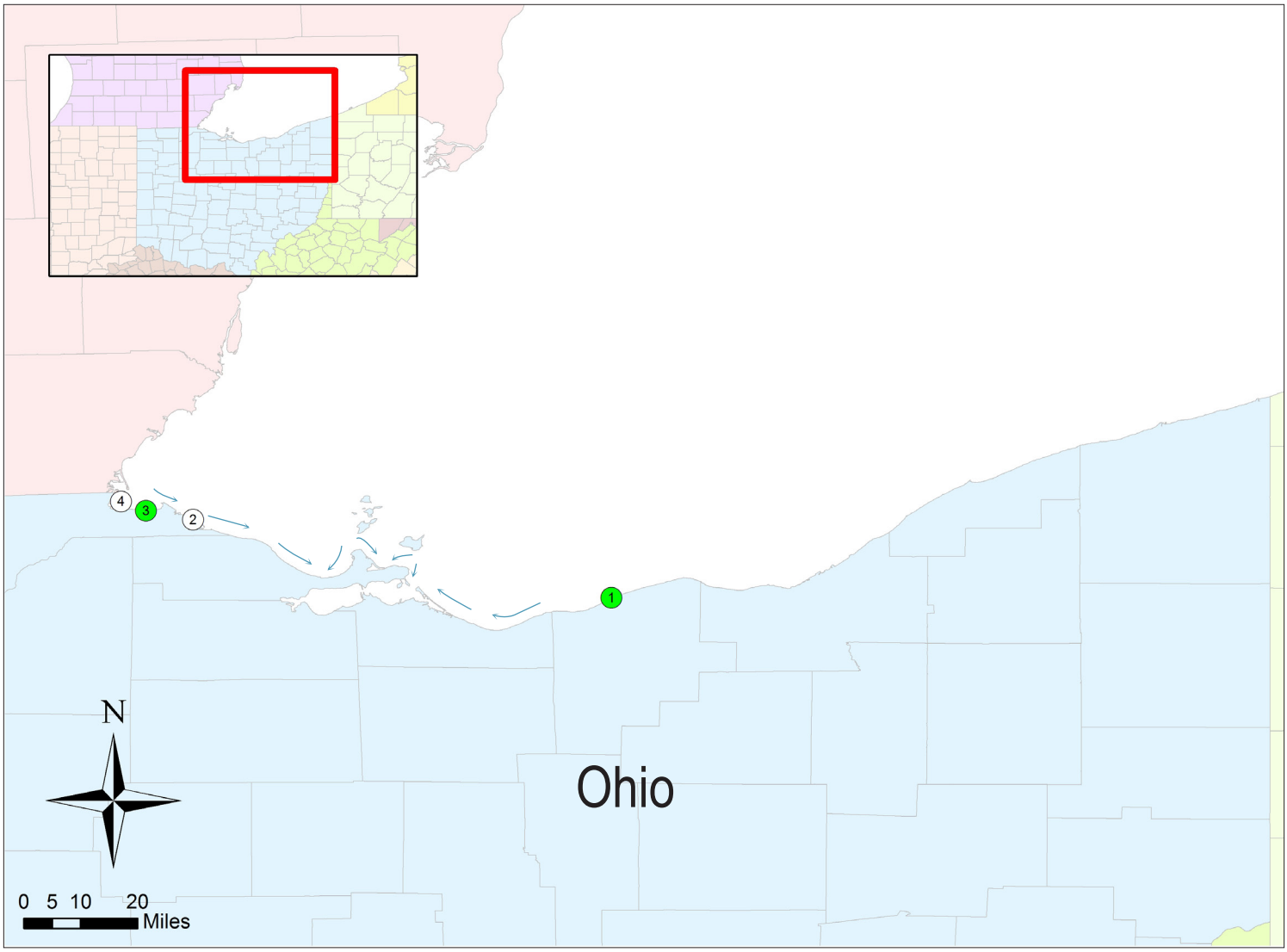
5 = Negligible economics (Recreation Harbors, No commercial Activity). No life safety impact.

For complete definitions see page 7.

Indiana		Estimated Future Federal Costs					
		Total (FY 2013 - FY 2017)	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
Project Name and Project Reliability	Phase	Geographic Area: East Chicago					
Calumet Harbor and River	N	$21,806,000	$4,276,000	$4,257,000	$4,299,000	$4,421,000	$4,553,000
Indiana Harbor	N	$47,261,000	$11,730,000	$9,530,000	$9,815,000	$10,110,000	$6,076,000
Indiana Harbor, Confined Disposal Facility, IN	N	$23,175,000	$4,800,000	$4,950,000	$5,100,000	$4,100,000	$4,225,000
Geographic Area: Indiana Dunes Coast - Eastern Indiana							
Whiting Shoreline Waterfront Project, IN	N	$0	$0	$0	$0	$0	$0
Burns Waterway Small Boat Harbor	N	$4,769,000	$25,000	$577,000	$1,348,000	$1,389,000	$1,430,000
Burns Waterway Harbor	N	$42,494,000	$6,643,000	$6,844,000	$8,448,000	$10,124,000	$10,435,000
Beverly Shores	N	$0	$0	$0	$0	$0	$0
Indiana Shoreline	C	$0	$0	$0	$0	$0	$0
Michigan City Harbor, IN	N	$36,392,000	$6,462,000	$6,638,000	$7,536,000	$7,763,000	$7,993,000
Totals		$175,897,000	$33,936,000	$32,796,000	$36,546,000	$37,907,000	$34,712,000


4
3
2
1
N
Ohio
0 5 10 20
Miles
Direction of sediment flow

Ohio

PROJECT LEGEND

Key	Type	Project Name
Geographic Area: South Shore Lake Erie - OH (Buffalo District)		
1	CSRM	Lakeview Park Cooperative
2	CSRM	Reno Beach
3	CSRM	Maumee Bay
Geographic Area: West End Lake Erie (Buffalo District)		
4	CSRM	Point Place

Coastal Storm Risk Management Project Reliability

- = GOOD
- = INTERMEDIATE
- = POOR
- = UNCONSTRUCTED
- = UNASSIGNED

Navigation Project Reliability

- = GOOD
- = MODERATE
- = POOR
- = FAILING
- = FAILED
- = UNASSIGNED

△ = INLET ONLY, NOT A FEDERAL NAVIGATION PROJECT

Lakeview Park

Maumee Bay State Park

Ohio

Project Type	Project Name and Project Reliability	Phase	Extent of Resources at Risk: Structures (residential, commercial)	Environment and Habitat	Infrastructure (roads, water/sewer lines, boardwalks, navigation structures)	Critical Facilities (police, fire, schools, hospitals, nursing homes)	Evacuation and Re-entry Routes	Recreation	Consequence/ Economic Impact Rating
Geographic Area: South Shore Lake Erie - OH (Buffalo District)									
CSRM	Lakeview Park Cooperative	C	•	•	•	•	•	••	
CSRM	Reno Beach	C	•••	•	••	•	•	•	
CSRM	Maumee Bay	C	•	•	•	•	•	••	
Geographic Area: West End Lake Erie (Buffalo District)									
CSRM	Point Place	C	•••	•	••	•	••	••	

Project Type

CSRM = Coastal Storm Risk Management
NV = Navigation
ER = Ecosystem Restoration

Project Reliability

Indicated by background colors:

Green = Good (CSRM, NV)
Yellow = Intermediate (CSRM), Moderate (NV)
Orange = Poor (NV)
Pink = Failing (NV)
Red = Poor (CSRM), Failed (NV)
Purple = Unconstructed (CSRM)

Phase

S = Study
E = Pre-construction engineering and design
A = Awaiting initial construction funds
P = Partial construction funds received
C = Initial construction completed
U = Under Construction
R = Renourishment(s) initiated
N = Navigation maintenance

Extent of Resources at Risk

Coastal Storm Risk Management

••• = Significant
•• = Moderate
• = Minimal
x = None

Navigation

1 = Demonstrated highest economic impact or >10M Tons. Imminent life safety impact.
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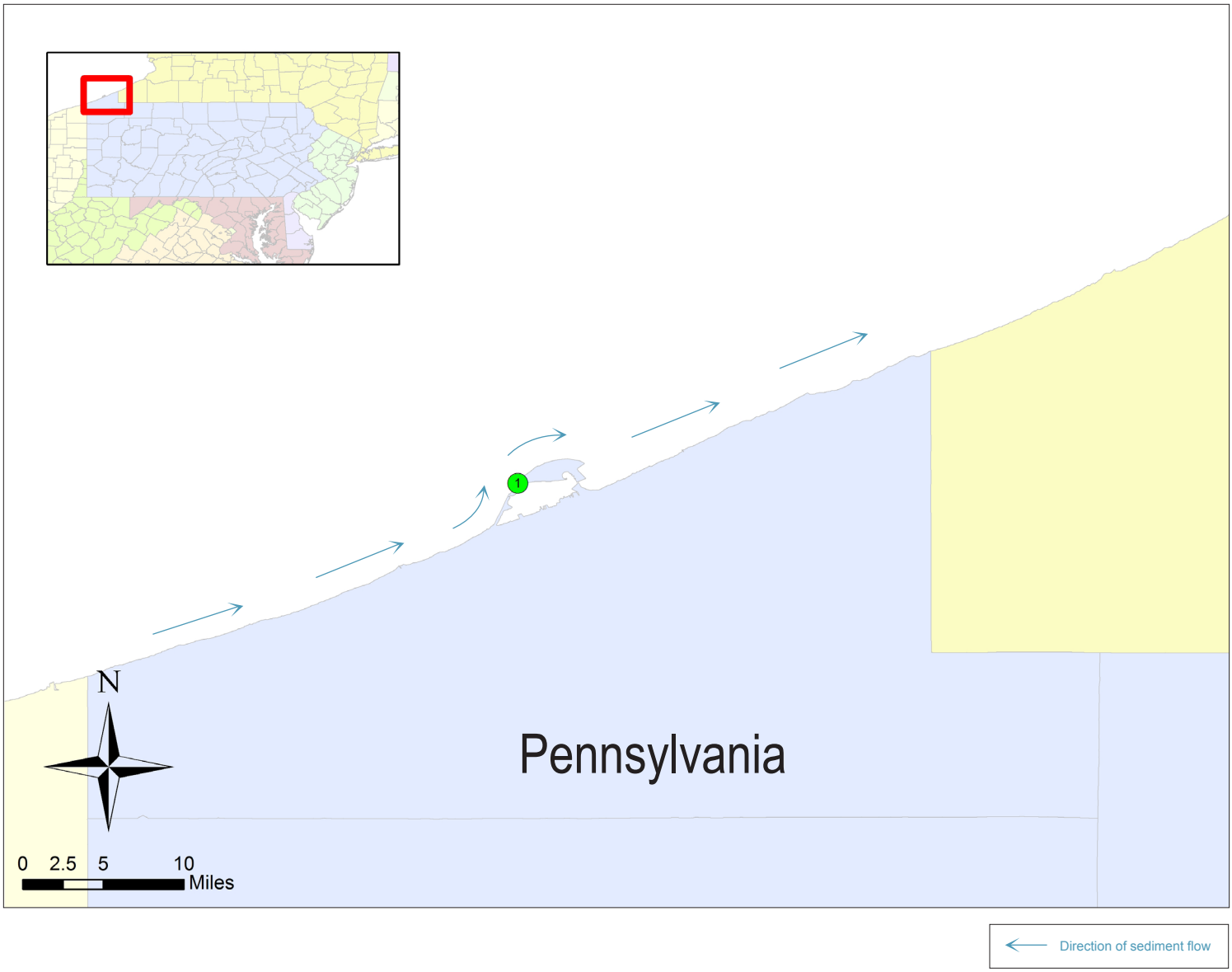
5 = Negligible economics (Recreation Harbors, No commercial Activity). No life safety impact.

For complete definitions see page 7.

Ohio		Estimated Future Federal Costs					
		Total (FY 2013 - FY 2017)	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
Project Name and Project Reliability	Phase	Geographic Area: South Shore Lake Erie - OH (Buffalo District)					
Lakeview Park Cooperative	C	$0	$0	$0	$0	$0	$0
Reno Beach	C	$0	$0	$0	$0	$0	$0
Maumee Bay	C	$0	$0	$0	$0	$0	$0
		Geographic Area: West End Lake Erie (Buffalo District)					
Point Place	C	$0	$0	$0	$0	$0	$0
Totals		$0	$0	$0	$0	$0	$0


1
N
Pennsylvania
0 2.5 5 10
Miles
Direction of sediment flow

Pennsylvania

PROJECT LEGEND

Key	Type	Project Name
Geographic Area: South Shore Lake Erie		
1	CSRM	Presque Isle

Coastal Storm Risk Management Project Reliability

- = GOOD
- = INTERMEDIATE
- = POOR
- = UNCONSTRUCTED
- = UNASSIGNED

Navigation Project Reliability

- = GOOD
- = MODERATE
- = POOR
- = FAILING
- = FAILED
- = UNASSIGNED

△ = INLET ONLY, NOT A FEDERAL NAVIGATION PROJECT

Presque Isle Beach

Presque Isle Before & After

Pennsylvania

Project Type	Project Name and Project Reliability	Phase	Extent of Resources at Risk: Structures (residential, commercial)	Environment and Habitat	Infrastructure (roads, water/sewer lines, boardwalks, navigation structures)	Critical Facilities (police, fire, schools, hospitals, nursing homes)	Evacuation and Re-entry Routes	Recreation	Consequence/ Economic Impact Rating
			Geographic Area: South Shore Lake Erie						
CSRM	Presque Isle	C	•	•••	••	••	•	•••	

Project Type

CSRM = Coastal Storm Risk Management
NV = Navigation
ER = Ecosystem Restoration

Project Reliability

Indicated by background colors:

Green = Good (CSRM, NV)
Yellow = Intermediate (CSRM), Moderate (NV)
Orange = Poor (NV)
Pink = Failing (NV)
Red = Poor (CSRM), Failed (NV)
Purple = Unconstructed (CSRM)

Phase

S = Study
E = Pre-construction engineering and design
A = Awaiting initial construction funds
P = Partial construction funds received
C = Initial construction completed
U = Under Construction
R = Renourishment(s) initiated
N = Navigation maintenance

Extent of Resources at Risk

Coastal Storm Risk Management

••• = Significant
•• = Moderate
• = Minimal
x = None

Navigation

1 = Demonstrated highest economic impact or >10M Tons. Imminent life safety impact.
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3 = Demonstrated moderate economic impact or 1-5M Tons. Possible life safety impact.
4 = Low economic impact or <1M Tons. No life safety impact.
5 = Negligible economics (Recreation Harbors, No commercial Activity). No life safety impact.

For complete definitions see page 7.

Pennsylvania		Estimated Future Federal Costs					
		Total (FY 2013 - FY 2017)	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
Project Name and Project Reliability	Phase	Geographic Area: South Shore Lake Erie					
Presque Isle	C	$7,500,000	$1,500,000	$1,500,000	$1,500,000	$1,500,000	$1,500,000
Totals		$7,500,000	$1,500,000	$1,500,000	$1,500,000	$1,500,000	$1,500,000

Opportunities for Action

1. Sand accumulation at updrift (west) side of Conneaut Harbor, Ohio could be a potential sand source for future nourishment activities.


Alaska
N
0 75 150 300
Miles

Alaska

Data for Alaska will be added in the next version of this Technical Review Document.

Coastal Storm Risk Management Project Reliability

- = GOOD
- = INTERMEDIATE
- = POOR
- = UNCONSTRUCTED
- = UNASSIGNED

Navigation Project Reliability

- = GOOD
- = MODERATE
- = POOR
- = FAILING
- = FAILED
- = UNASSIGNED

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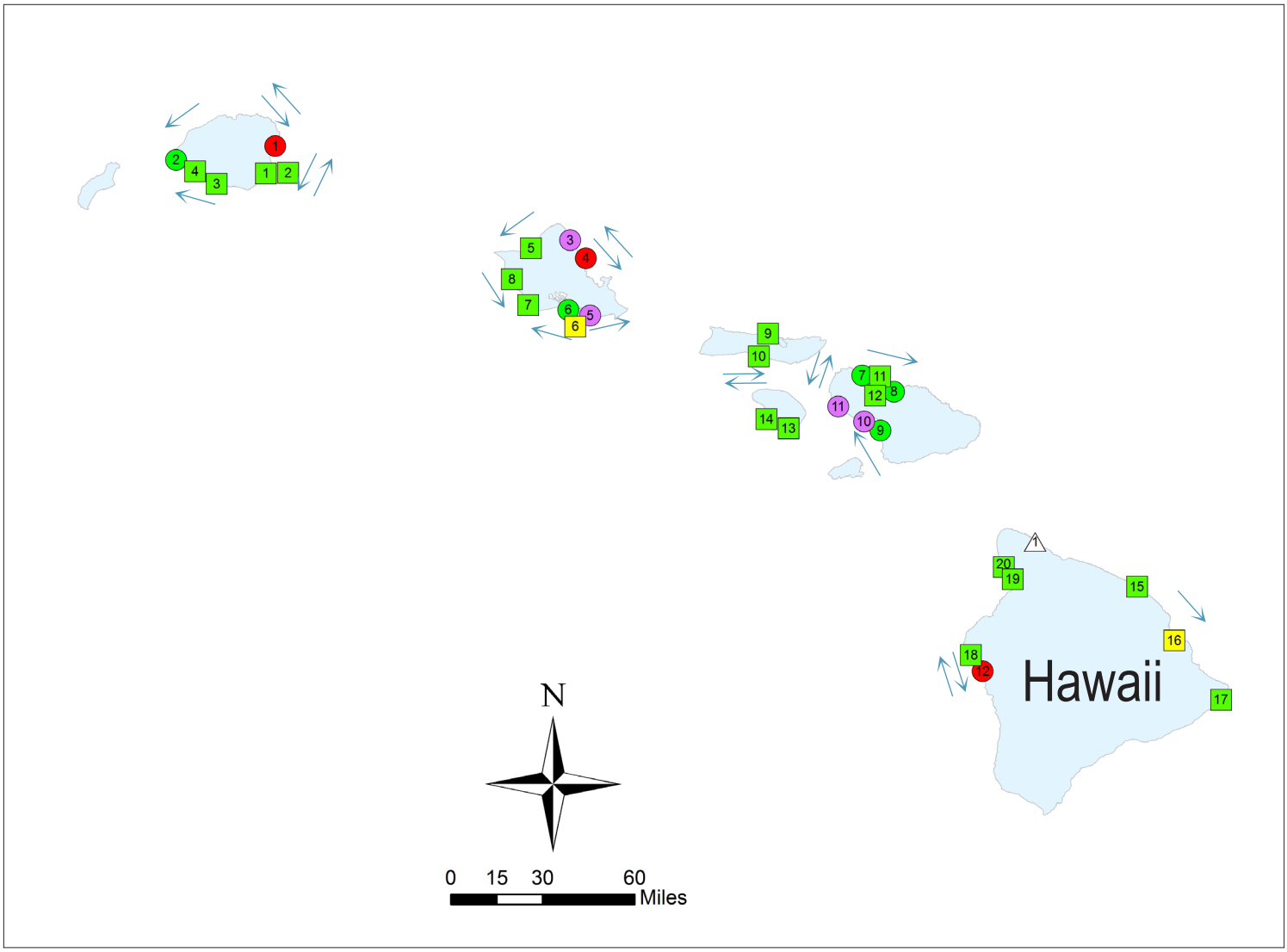
Chignik Harbor

Shishmaref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10
9
14
13
1
20
19
15
16
18
12
17
Hawaii
N
0
15
30
60
Miles
Direction of sediment flow

Hawaii

PROJECT LEGEND

Key	Type	Project Name
		Geographic Area: Kauai
1	CSRM	Kapaa Beach CSRM Project
1	NV	Nawiliwili Small Boat Harbor
2	NV	Nawiliwili Deep Draft Harbor
3	NV	Port Allen Harbor
4	NV	Kikiaola Light Draft Harbor
2	CSRM	Kekaha Beach Project
		Geographic Area: Oahu
5	NV	Haleiwa Small Boat Harbor
3	CSRM	North Shore, CSRM Project
4	CSRM	Kaaawa Beach CSRM Project
5	CSRM	Waikiki Erosion Control Study, Oahu (May 02)
6	NV	Honolulu Harbor
6	CSRM	Sand Island CSRM Project
7	NV	Barbers Point Deep Draft Harbor
8	NV	Waianae Small Boat Harbor
		Geographic Area: Molokai
9	NV	Kalaupapa Harbor
10	NV	Kaunakakai Harbor
		Geographic Area: Maui
7	CSRM	Kahului Bay Mitigation
11	NV	Kahului Deep Draft Harbor
8	CSRM	Kahului Wastewater Plant
12	NV	Kahului Light Draft Harbor
9	CSRM	Kihei Beach CSRM Project
10	CSRM	Kihei Area Erosion Project
11	CSRM	Lanuipoko CSRM Project
		Geographic Area: Lanai
13	NV	Manele Small Boat Harbor
14	NV	Kaumalapau Deep Draft Harbor
		Geographic Area: Hawaii
△1	NV	North Kohala
15	NV	Laupahoehoe Harbor
16	NV	Hilo Deep Draft Harbor
17	NV	Pohoiki Bay Harbor
12	CSRM	Alii Drive CSRM Project
18	NV	Honokohau Deep Draft Harbor
19	NV	Kawaihae Small Boat Harbor
20	NV	Kawaihae Deep Draft Harbor

Coastal Storm Risk Management Project Reliability

- = GOOD
- = INTERMEDIATE
- = POOR
- = UNCONSTRUCTED
- = UNASSIGNED

Navigation Project Reliability

- = GOOD
- = MODERATE
- = POOR
- = FAILING
- = FAILED
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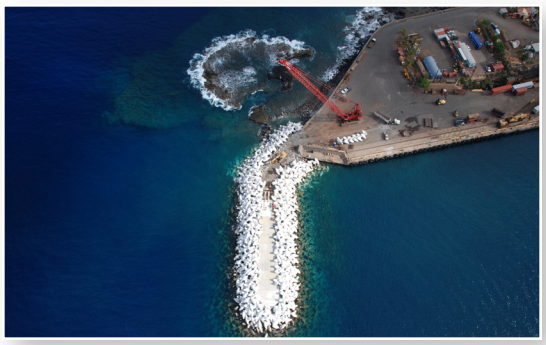

Kaumalapau Harbor

Sand Island Beach Park

Hawaii

Project Type	Project Name and Project Reliability	Phase	Extent of Resources at Risk: Structures (residential, commercial)	Environment and Habitat	Infrastructure (roads, water/sewer lines, boardwalks, navigation structures)	Critical Facilities (police, fire, schools, hospitals, nursing homes)	Evacuation and Re-entry Routes	Recreation	Consequence/ Economic Impact Rating
Geographic Area: Kauai									
CSRM	Kapaa Beach CSRM Project	C	•	••	•	•	•	••	
NV	Nawiliwili Small Boat Harbor	N							4
NV	Nawiliwili Deep Draft Harbor	N							3
NV	Port Allen Harbor	N							1
NV	Kikiaola Light Draft Harbor	N							4
CSRM	Kekaha Beach Project	C	•	•	•	•••	••	••	
Geographic Area: Oahu									
NV	Haleiwa Small Boat Harbor	N							1
CSRM	North Shore, CSRM Project	S	•	•	•••	•	•••	•	
CSRM	Kaaawa Beach CSRM Project	C	•	••	••	•	••	••	
CSRM	Waikiki Erosion Control Study, Oahu (May 02)	S	•••	•	•	•	•	•••	
NV	Honolulu Harbor	N							1
CSRM	Sand Island CSRM Project	C	•	•	•	•	•	•••	
NV	Barbers Point Deep Draft Harbor	N							2
NV	Waianae Small Boat Harbor	N							4
Geographic Area: Molokai									
NV	Kalaupapa Harbor	N							1
NV	Kaunakakai Harbor	N							1
Geographic Area: Maui									
CSRM	Kahului Bay Mitigation	C	•	••	••	•	••	•	
NV	Kahului Deep Draft Harbor	N							3
CSRM	Kahului Wastewater Plant	C	•	•	•	•••	•	•	
NV	Kahului Light Draft Harbor	N							4
CSRM	Kihei Beach CSRM Project	C	•	•	•	•	•	••	
CSRM	Kihei Area Erosion Project	S	•	•	•	•	•	••	
CSRM	Lanuipoko CSRM Project	E	•	•	•••	•	•	•	
Geographic Area: Lanai									
NV	Manele Small Boat Harbor	N							1
NV	Kaumalapau Deep Draft Harbor	N							1

Project Type

CSRM = Coastal Storm Risk Management
NV = Navigation
ER = Ecosystem Restoration

Project Reliability

Indicated by background colors:

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Yellow = Intermediate (CSRM), Moderate (NV)
Orange = Poor (NV)
Pink = Failing (NV)
Red = Poor (CSRM), Failed (NV)
Purple = Unconstructed (CSRM)

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Extent of Resources at Risk

Coastal Storm Risk Management

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x = None

Navigation

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For complete definitions see page 7.

Hawaii		Estimated Future Federal Costs					
		Total (FY 2013 - FY 2017)	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
Project Name and Project Reliability	Phase	Geographic Area: Kauai					
Kapaa Beach CSRM Project	C	$52,000	$0	$0	$0	$0	$52,000
Nawiliwili Small Boat Harbor	N	$20,000	$0	$0	$20,000	$0	$0
Nawiliwili Deep Draft Harbor	N	$1,240,000	$20,000	$200,000	$1,000,000	$20,000	$0
Port Allen Harbor	N	$40,000	$20,000	$0	$0	$0	$20,000
Kikiaola Light Draft Harbor	N	$100,000	$20,000	$20,000	$20,000	$20,000	$20,000
Kekaha Beach Project	C	$625,000	$0	$0	$0	$0	$625,000
Geographic Area: Oahu							
Haleiwa Small Boat Harbor	N	$20,000	$0	$20,000	$0	$0	$0
North Shore, CSRM Project	S	$0	$0	$0	$0	$0	$0
Kaaawa Beach CSRM Project	C	$48,000	$0	$0	$0	$0	$48,000
Waikiki Erosion Control Study, Oahu (May 02)	S	$0	$0	$0	$0	$0	$0
Honolulu Harbor	N	$1,740,000	$20,000	$200,000	$1,500,000	$20,000	$0
Sand Island CSRM Project	C	$659,000	$0	$0	$0	$0	$659,000
Barbers Point Deep Draft Harbor	N	$1,240,000	$20,000	$200,000	$1,000,000	$20,000	$0
Waianae Small Boat Harbor	N	$20,000	$0	$20,000	$0	$0	$0
Geographic Area: Molokai							
Kalaupapa Harbor	N	$20,000	$0	$0	$0	$20,000	$0
Kaunakakai Harbor	N	$40,000	$20,000	$0	$0	$20,000	$0
Geographic Area: Maui							
Kahului Bay Mitigation	C	$180,000	$0	$0	$0	$0	$180,000
Kahului Deep Draft Harbor	N	$1,740,000	$20,000	$200,000	$1,500,000	$20,000	$0
Kahului Wastewater Plant	C	$65,000	$0	$0	$0	$0	$65,000
Kahului Light Draft Harbor	N	$40,000	$20,000	$0	$0	$20,000	$0
Kihei Beach CSRM Project	C	$90,000	$0	$0	$0	$0	$90,000
Kihei Area Erosion Project	S	$0	$0	$0	$0	$0	$0
Lanuipoko CSRM Project	E	$0	$0	$0	$0	$0	$0
Geographic Area: Lanai							
Manele Small Boat Harbor	N	$40,000	$0	$20,000	$0	$0	$20,000
Kaumalapau Deep Draft Harbor	N	$0	$0	$0	$0	$0	$0

Note: The USACE owned dredge Essayons will be in Hawaii during FY12 to dredge all federal deep draft navigation projects.

Opportunities for Action

1. **North Maui: Kahului Harbor:** The harbor is scheduled to be dredged in FY15. Based on the quality of material to be dredged, there is a possibility that it could be placed on Kanaha Beach east of the project area. There is also a large deposit of sediment offshore of Kahului Harbor that could potentially be used for beach placement, but it may be in too deep of water for the Essayons to dredge.
2. **South Kauai: Port Allen Harbor:** The shoreline inside the Port Allen Harbor experienced shoreline recession. A revetment was constructed to stabilize the shoreline and there is presently no dry beach fronting the structure. Dredged material could be placed in the area or on the adjacent sandy shoreline in FY15.
3. **West Kauai:** Cyclical erosion and accretion have been noted along this portion of shoreline. Currently, the state is constructing a pile dike north of the federally authorized revetment in an attempt to save the road from undermining. RSM and EWN methods should be developed to maintain sufficient beach width fronting the highway.

Hawaii

Project Type	Project Name and Project Reliability	Phase	Extent of Resources at Risk (Cont.)						
			Structures (residential, commercial)	**Environment and Habitat**	**Infrastructure** (roads, water/sewer lines, boardwalks, navigation structures)	**Critical Facilities** (police, fire, schools, hospitals, nursing homes)	**Evacuation and Re-entry Routes**	**Recreation**	**Consequence/ Economic Impact Rating**
			Geographic Area: Hawaii						
NV	North Kohala	N							
NV	Laupahoehoe Harbor	N							2
NV	Hilo Deep Draft Harbor	N							3
NV	Pohoiki Bay Harbor	N							2
CSRM	Alii Drive CSRM Project	C							
NV	Honokohau Deep Draft Harbor	N							2
NV	Kawaihae Small Boat Harbor	N							5
NV	Kawaihae Deep Draft Harbor	N							3

Project Type

CSRM = Coastal Storm Risk Management
NV = Navigation
ER = Ecosystem Restoration

Project Reliability

Indicated by background colors:

Green = Good (CSRM, NV)
Yellow = Intermediate (CSRM), Moderate (NV)
Orange = Poor (NV)
Pink = Failing (NV)
Red = Poor (CSRM), Failed (NV)
Purple = Unconstructed (CSRM)

Phase

S = Study
E = Pre-construction engineering and design
A = Awaiting initial construction funds
P = Partial construction funds received
C = Initial construction completed
U = Under Construction
R = Renourishment(s) initiated
N = Navigation maintenance

Extent of Resources at Risk

Coastal Storm Risk Management

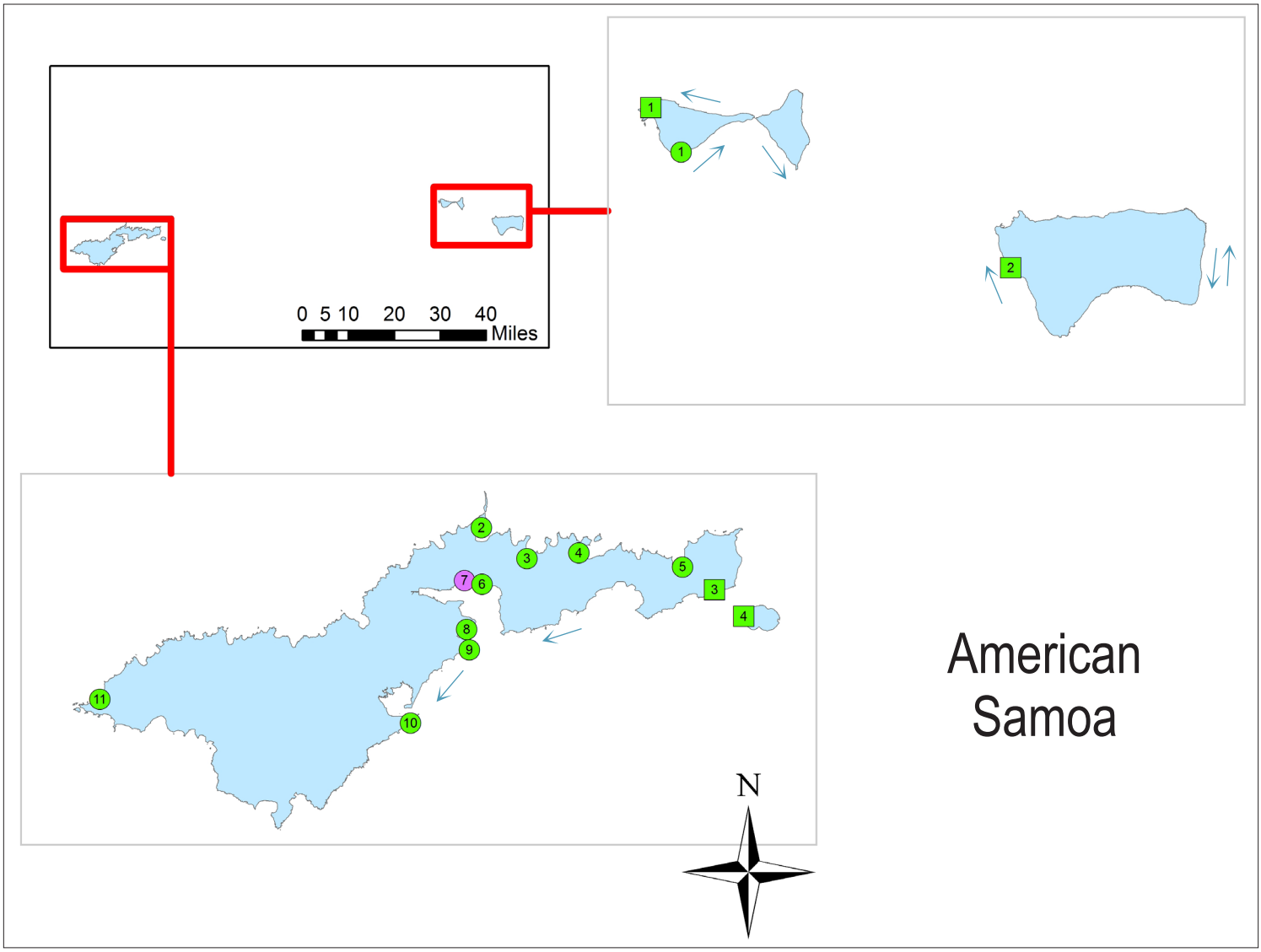
••• = Significant
•• = Moderate
• = Minimal
x = None

Navigation

1 = Demonstrated highest economic impact or >10M Tons. Imminent life safety impact.
2 = Demonstrated high economic impact or 5-10M Tons. Probable life safety impact.
3 = Demonstrated moderate economic impact or 1-5M Tons. Possible life safety impact.
4 = Low economic impact or <1M Tons. No life safety impact.
5 = Negligible economics (Recreation Harbors, No commercial Activity). No life safety impact.

For complete definitions see page 7.

Hawaii		Estimated Future Federal Costs (Cont.)					
		Total (FY 2013 - FY 2017)	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
Project Name and Project Reliability	Phase	Geographic Area: Hawaii					
North Kohala	N	$0	$0	$0	$0	$0	$0
Laupahoehoe Harbor	N	$20,000	$0	$0	$0	$0	$20,000
Hilo Deep Draft Harbor	N	$0	$0	$0	$0	$0	$0
Pohoiki Bay Harbor	N	$0	$0	$0	$0	$0	$0
Alii Drive CSRM Project	C	$34,000	$0	$0	$0	$0	$34,000
Honokohau Deep Draft Harbor	N	$20,000	$0	$0	$20,000	$0	$0
Kawaihae Small Boat Harbor	N	$20,000	$0	$0	$0	$0	$20,000
Kawaihae Deep Draft Harbor	N	$20,000	$0	$0	$0	$0	$20,000
Totals		$8,133,000	$160,000	$880,000	$5,060,000	$160,000	$1,873,000


0 5 10 20 30 40
Miles
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2
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6
7
8
9
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11
N
American
Samoa
Direction of sediment flow

American Samoa

PROJECT LEGEND

Key	Type	Project Name
Geographic Area: American Samoa (Honolulu District)		
1	NV	Ofu Small Boat Harbor
1	CSRM	Ofu Airstrip
2	NV	Tau Small Boat Harbor
2	CSRM	Vatia Area
3	CSRM	Afono Area CSRM Project
4	CSRM	Masefau Area
5	CSRM	Aoa Area
3	NV	Auasi Small Boat Harbor
4	NV	Aunuu Small Boat Harbor
6	CSRM	Lepua Area CSRM Project
7	CSRM	Leloaloa
8	CSRM	Matafao Area
9	CSRM	Pago Pago to Nuuuli
10	CSRM	Pago Pago Airport
11	CSRM	Poloa Area

Coastal Storm Risk Management Project Reliability

- = GOOD
- = INTERMEDIATE
- = POOR
- = UNCONSTRUCTED
- = UNASSIGNED

Navigation Project Reliability

- = GOOD
- = MODERATE
- = POOR
- = FAILING
- = FAILED
- = UNASSIGNED

△ = INLET ONLY, NOT A FEDERAL NAVIGATION PROJECT

Ofu

Vatia

American Samoa

Project Type	Project Name and Project Reliability	Phase	Extent of Resources at Risk: Structures (residential, commercial)	Environment and Habitat	Infrastructure (roads, water/sewer lines, boardwalks, navigation structures)	Critical Facilities (police, fire, schools, hospitals, nursing homes)	Evacuation and Re-entry Routes	Recreation	Consequence/ Economic Impact Rating
			Geographic Area: American Samoa						
NV	Ofu Small Boat Harbor	N							1
CSRM	Ofu Airstrip	C	•	•	•	••	•	•	
NV	Tau Small Boat Harbor	N							1
CSRM	Vatia Area	C	•	•	•	••	•	•	
CSRM	Afono Area CSRM Project	C	•	•	•	••	•	•	
CSRM	Masefau Area	C	•	•	•	••	•	•	
CSRM	Aoa Area	C	•	•	•	••	•	•	
NV	Auasi Small Boat Harbor	N							1
NV	Aunuu Small Boat Harbor	N							1
CSRM	Lepua Area CSRM Project	C	•	•	•••	••	••	•	
CSRM	Leloaloa	S	•	•	•••	•	•••	•	
CSRM	Matafao Area	C	•	•	•	••	•	•	
CSRM	Pago Pago to Nuuuli	C	••	•	••	•	••	•	
CSRM	Pago Pago Airport	C	•••	•	•	•••	•	•	
CSRM	Poloa Area	C	•	•	•	••	•	•	

Project Type

CSRM = Coastal Storm Risk Management
NV = Navigation
ER = Ecosystem Restoration

Project Reliability

Indicated by background colors:

Green = Good (CSRM, NV)
Yellow = Intermediate (CSRM), Moderate (NV)
Orange = Poor (NV)
Pink = Failing (NV)
Red = Poor (CSRM), Failed (NV)
Purple = Unconstructed (CSRM)

Phase

S = Study
E = Pre-construction engineering and design
A = Awaiting initial construction funds
P = Partial construction funds received
C = Initial construction completed
U = Under Construction
R = Renourishment(s) initiated
N = Navigation maintenance

Extent of Resources at Risk

Coastal Storm Risk Management

••• = Significant
•• = Moderate
• = Minimal
x = None

Navigation

1 = Demonstrated highest economic impact or >10M Tons. Imminent life safety impact.
2 = Demonstrated high economic impact or 5-10M Tons. Probable life safety impact.
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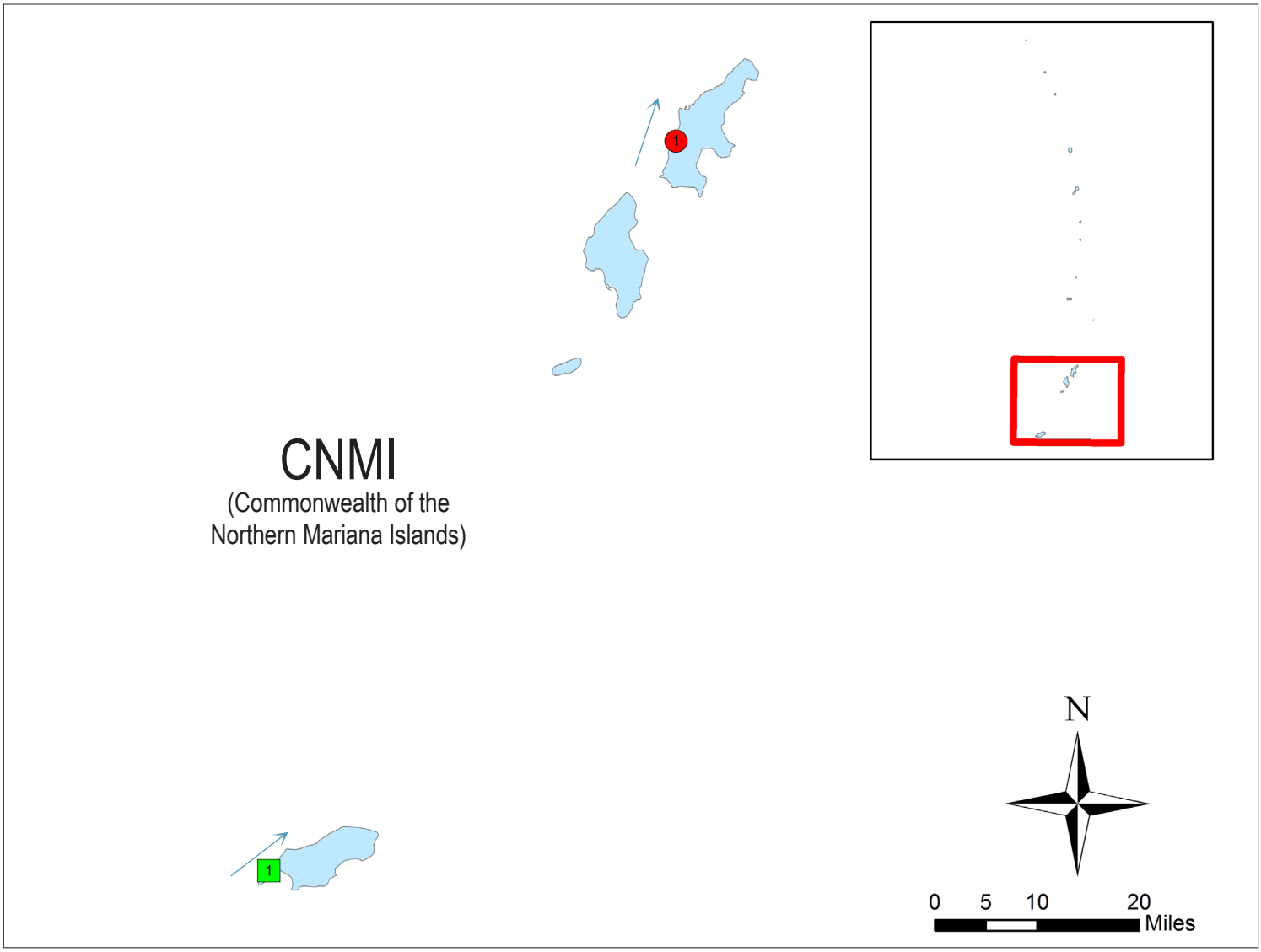
For complete definitions see page 7.

American Samoa

Project Name and Project Reliability	Phase	Estimated Future Federal Costs					
		Total (FY 2013 - FY 2017)	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
		Geographic Area: American Samoa					
Ofu Small Boat Harbor	N	$20,000	$0	$0	$0	$0	$20,000
Ofu Airstrip	C	$30,000	$0	$0	$0	$0	$30,000
Tau Small Boat Harbor	N	$20,000	$0	$0	$0	$0	$20,000
Vatia Area	C	$61,000	$0	$0	$0	$0	$61,000
Afono Area CSRM Project	C	$39,000	$0	$0	$0	$0	$39,000
Masefau Area	C	$57,000	$0	$0	$0	$0	$57,000
Aoa Area	C	$58,000	$0	$0	$0	$0	$58,000
Auasi Small Boat Harbor	N	$20,000	$0	$0	$0	$0	$20,000
Aunuu Small Boat Harbor	N	$20,000	$0	$0	$0	$0	$20,000
Lepua Area CSRM Project	C	$229,000	$0	$0	$0	$0	$229,000
Leloaloa	S	$0	$0	$0	$0	$0	$0
Matafao Area	C	$38,000	$0	$0	$0	$0	$38,000
Pago Pago to Nuuuli	C	$157,000	$0	$0	$0	$0	$157,000
Pago Pago Airport	C	$95,000	$0	$0	$0	$0	$95,000
Poloa Area	C	$47,000	$0	$0	$0	$0	$47,000
Totals		$891,000	$0	$0	$0	$0	$891,000


1
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CNMI
(Commonwealth of the
Northern Mariana Islands)
N
0 5 10 20
Miles
Direction of sediment flow

CNMI (Commonwealth of the Northern Mariana Islands)

PROJECT LEGEND

Key	Type	Project Name
Geographic Area: CNMI (Commonwealth of the Northern Mariana Islands)		
1	NV	Saipan Beach Road
1	CSRM	Rota Small Boat Harbor

Coastal Storm Risk Management Project Reliability

- = GOOD
- = INTERMEDIATE
- = POOR
- = UNCONSTRUCTED
- = UNASSIGNED

Navigation Project Reliability

- = GOOD
- = MODERATE
- = POOR
- = FAILING
- = FAILED
- = UNASSIGNED

△ = INLET ONLY, NOT A FEDERAL NAVIGATION PROJECT

Saipan

Rota

CNMI
(Commonwealth of the Northern Mariana Islands)

Project Type	Project Name and Project Reliability	Phase	Extent of Resources at Risk: Structures (residential, commercial)	Environment and Habitat	Infrastructure (roads, water/sewer lines, boardwalks, navigation structures)	Critical Facilities (police, fire, schools, hospitals, nursing homes)	Evacuation and Re-entry Routes	Recreation	Consequence/ Economic Impact Rating
			Geographic Area: CNMI (Commonwealth of the Northern Mariana Islands)						
CSRM	Saipan Beach Road	C	•	••	••	•	••	••	
NV	Rota Small Boat Harbor	N							1

Project Type

CSRM = Coastal Storm Risk Management
NV = Navigation
ER = Ecosystem Restoration

Project Reliability

Indicated by background colors:

Green = Good (CSRM, NV)
Yellow = Intermediate (CSRM), Moderate (NV)
Orange = Poor (NV)
Pink = Failing (NV)
Red = Poor (CSRM), Failed (NV)
Purple = Unconstructed (CSRM)

Phase

S = Study
E = Pre-construction engineering and design
A = Awaiting initial construction funds
P = Partial construction funds received
C = Initial construction completed
U = Under Construction
R = Renourishment(s) initiated
N = Navigation maintenance

Extent of Resources at Risk

Coastal Storm Risk Management

••• = Significant
•• = Moderate
• = Minimal
x = None

Navigation

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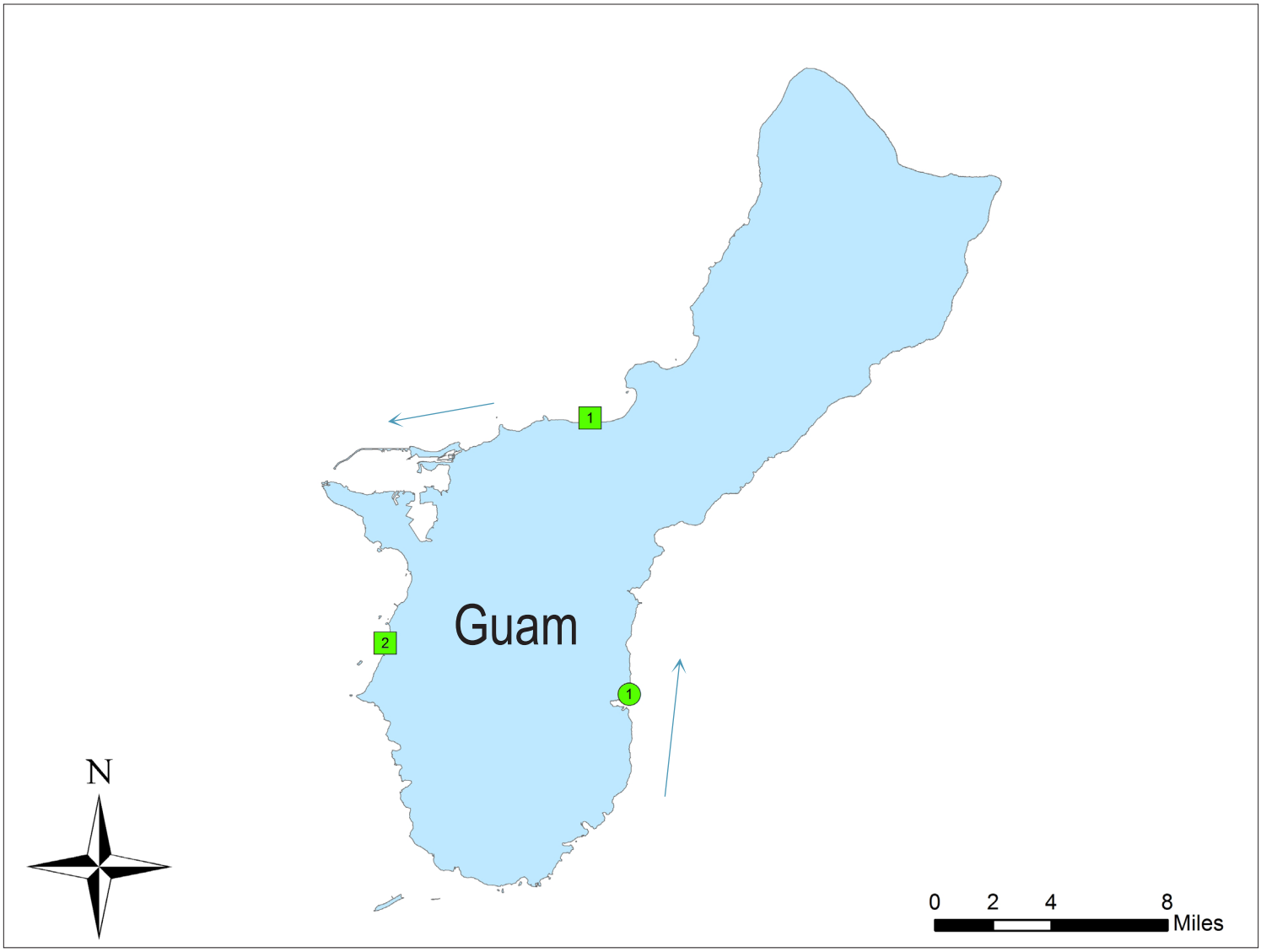
3 = Demonstrated moderate economic impact or 1-5M Tons. Possible life safety impact.
4 = Low economic impact or <1M Tons. No life safety impact.
5 = Negligible economics (Recreation Harbors, No commercial Activity). No life safety impact.

For complete definitions see page 7.

CNMI (Commonwealth of the Northern Mariana Islands)		Estimated Future Federal Costs					
		Total (FY 2013 - FY 2017)	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
Project Name and Project Reliability	Phase	Geographic Area: CNMI (Commonwealth of the Northern Mariana Islands)					
Saipan Beach Road	C	$12,000	$0	$0	$0	$0	$12,000
Rota Small Boat Harbor	N	$20,000	$0	$0	$20,000	$0	$0
Totals		$32,000	$0	$0	$20,000	$0	$12,000


Guam
1
2
1
N
0 2 4 8
Miles
Direction of sediment flow

Guam

PROJECT LEGEND

Key	Type	Project Name
Geographic Area: Guam		
1	NV	Agat Small Boat Harbor
2	NV	Agana Small Boat Harbor
1	CSRM	Asquiroga Bay

Coastal Storm Risk Management Project Reliability

- = GOOD
- = INTERMEDIATE
- = POOR
- = UNCONSTRUCTED
- = UNASSIGNED

Navigation Project Reliability

- = GOOD
- = MODERATE
- = POOR
- = FAILING
- = FAILED
- = UNASSIGNED

△ = INLET ONLY, NOT A FEDERAL NAVIGATION PROJECT

Agana

Asquiroga

Guam

Project Type	Project Name and Project Reliability	Phase	Extent of Resources at Risk: Structures (residential, commercial)	Environment and Habitat	Infrastructure (roads, water/sewer lines, boardwalks, navigation structures)	Critical Facilities (police, fire, schools, hospitals, nursing homes)	Evacuation and Re-entry Routes	Recreation	Consequence/ Economic Impact Rating
			Geographic Area: Guam						
NV	Agat Small Boat Harbor	N							4
NV	Agana Small Boat Harbor	N							4
CSRM	Asquiroga Bay	C	•	•	••	•	•	•	

Project Type

CSRM = Coastal Storm Risk Management
NV = Navigation
ER = Ecosystem Restoration

Project Reliability

Indicated by background colors:

Green = Good (CSRM, NV)
Yellow = Intermediate (CSRM), Moderate (NV)
Orange = Poor (NV)
Pink = Failing (NV)
Red = Poor (CSRM), Failed (NV)
Purple = Unconstructed (CSRM)

Phase

S = Study
E = Pre-construction engineering and design
A = Awaiting initial construction funds
P = Partial construction funds received
C = Initial construction completed
U = Under Construction
R = Renourishment(s) initiated
N = Navigation maintenance

Extent of Resources at Risk

Coastal Storm Risk Management

••• = Significant
•• = Moderate
• = Minimal
x = None

Navigation

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5 = Negligible economics (Recreation Harbors, No commercial Activity). No life safety impact.

For complete definitions see page 7.

Guam		Estimated Future Federal Costs					
		Total (FY 2013 - FY 2017)	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
Project Name and Project Reliability	Phase	Geographic Area: Guam					
Agat Small Boat Harbor	N	$20,000	$0	$0	$0	$0	$20,000
Agana Small Boat Harbor	N	$20,000	$0	$0	$0	$0	$20,000
Asquiroga Bay	C	$38,000	$0	$0	$0	$0	$38,000
Totals		$78,000	$0	$0	$0	$0	$78,000

Dewey Beach, Delaware

Andrews River Saquatucket Harbor, Massachusetts

Virginia Beach, Virginia

Misquamicut Beach, Rhode Island

Asbury Park and Loch Arbor, New Jersey

Atlantic Intracoastal Waterway, North Carolina

Gillard Island, Mobile Bay, Alabama

Pinellas Beach, Florida

Perdido Pass, Alabama

Sand Key, Florida

Encinitas Solana Beach, California

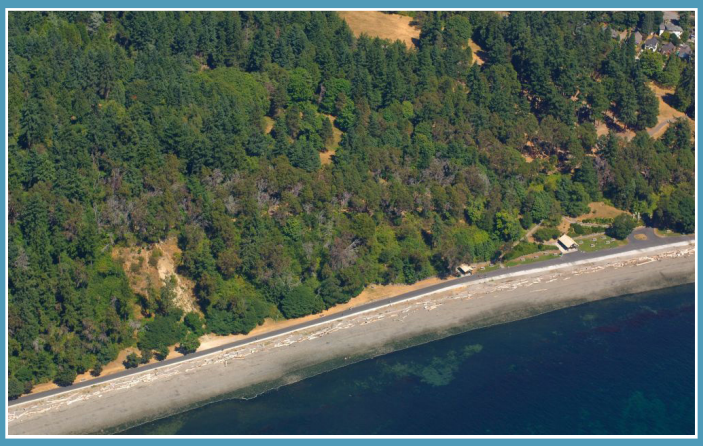
Nawiliwili, Hawaii

Michigan City, Indiana

Channel to Port Bolivar, Texas

Point Place, Ohio

Corpus Christi, Texas



Lincoln Park, Washington

Santa Barbara Harbor, California

Sand Island Beach Park, Hawaii

Burns Waterway Harbor, Indiana

For more information, contact:

Donald E. Cresitello

USACE Coastal Storm Risk Managment
National Planning Center of Expertise

New York District, Planning Division

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donald.e.cresitello@usace.army.mil

Coastal Systems Portfolio Initiative
Project Web Database
http://cspi.usace.army.mil/

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